THE AUTOMOBILE

VOL. XV. NEW YORK—THURSDAY, NOVEMBER 8, 1906—CHICAGO No. 19

EMPIRE CITY'S CONCLUDING 100-MILE RACE

YONKERS, N. Y., Nov. 6.—The second 100-mile struggle on the Empire City track again was a race wherein tires had much to do with the naming of the winner. C. H. Embleton piloted a Packard "Thirty" around the dusty mile circuit in masterly manner, and, with less tire troubles than his rivals, completed the century over six minutes in advance of the nearest antagonist—Wridgway driving a Peerless. One who had to be content with third, but who at one stage looked a winner, was Vaughan with a Stearns. He led for the first three miles, then relinquished the head of the procession to Embleton, who was fought by Roberts with a Thomas. Vaughan was a trailer until the thirtieth circuit, when Embleton stopped for a tire replacement. Only four times around did the Stearns driver serve as guide, when he, too, had a tire delay, which gave the place to Wridgway, who also had had difficulties.

In the forty-first mile Vaughan gained the front again and held the advantage to the sixtieth—tires then compelling a four-minute loss. Here it was that Embleton assumed the leadership, which he retained to the end of the race. Vaughan had another disaster, and this cost him second place, which Wridgway appropriated with a dust-raising and exuberant alacrity.

Koehler, the Buick winner of the previous "100," was an absentee, because of a Newark engagement, and Tom Cooper, still suffering from a badly swollen hand as a result of the accident in the October 27 race, did not appear with the powerful Matheson, which looked so much like a sure bet in the earlier stages of that varied and keenly fought contest.

The weather being sharp and clear, a record-breaking array of automobiles brought several thousands to the Yonkers course, the lawn in front of the big grandstand being crowded with cars

EMBLETON AND THE WINNING PACKARD BEING PURSUED IN THE EARLY MILES BY ROBERTS AND THE THOMAS.

GENERAL SURVEY IN FRONT OF THE BIG GRANDSTAND, WHERE THE CARS WERE PARKED, MANY AND VARIED.

HON. C. S. ROLLS, WHO HAD A TRY AT TRACK RACING.

of all makes and ages that, with the varied costumes of their occupants, lent a pleasing color contrast to the scene.

A notable participant in the short events which followed the long race was the Hon. Charles S. Rolls, of England, who drove the car with which he won in September the Tourist Trophy on the Isle of Man. The visitor took, without much opposition, the five-mile for stock cars of 25 horsepower and under, and was at scratch in the handicap, though his lesser power should have given a start to the Rolls-Royce over the Packard, which won somewhat handily.

A. M. THACKARA, JR., WHO DROVE THE NEW WESTINGHOUSE.

This same Packard took the five-mile for stock cars of from 25 to 40 horsepower, though the Stearns led by a hundred yards in the fourth mile before it went wrong and abruptly stopped. Once more in the five-mile for American cars the Packard excelled, and all around Embleton had a day of triumph.

The Renault had too much horsepower for the Westinghouse in the foreign car class, Bernin driving the winner and A. M. Thackara, Jr., making his racing début in the other French importation.

Again in the ten-mile international the red-coated Renault took the honors, its modestly stated 60 horsepower being too much for the equally modestly designated 30 horsepower of the Packard, which, however, contributed a plucky fight. The Peerless and the Westinghouse had an interesting battle in the rear for third place.

The summary of the closing Empire meet:

100 MILES FOR STRIPPED TOURING CARS.

1. Packard, 30 h.p.; owner, J. E. Martin; driver, C. H. Embleton; 2:00:55.
2. Peerless, 45 h.p.; owner and driver, C. G. Wridgway; 2:06:57 3-5.
3. Stearns, 30 h.p.; driver, Guy W. Vaughan; 2:10:52 2-5.

Also started: Thomas, 60 h.p.; driver, Montagu Roberts; Thomas, 40 h.p.; driver, William McIlvrid; American, 30 h.p.; driver, C. H. Covell; Columbia, 45 h.p.; driver, Ray Gilhooly.

FIVE MILES FOR STOCK CARS 25 H.P. OR UNDER.

1. Rolls-Royce, 20 h.p.; owner, Capt. C. E. Hutton; driver, Hon. C. S. Rolls; 5:51 4-5.
2. Olds, 8 h.p.; owner and driver, L. C. Hutcheson; 7:12.
3. Richard-Brasier, 16 h.p.; owner and driver, Peter Fogarty.

FIVE MILES FOR FOREIGN CARS.

1. Renault, 60 h.p.; owner, W. G. Brokaw; driver, M. Bernin; 6:30 3-5.
2. Westinghouse, 40 h.p.; owner and driver, A. M. Thackara, Jr.; 6:33 2-5.

FIVE MILES FOR STOCK CARS 25 TO 40 H.P.

1. Packard, 30 h.p.; owner, J. E. Martin; driver, C. H. Embleton; 5:37.
2. Stearns, 30 h.p.; driver, Guy W. Vaughan; d.o.

FIVE MILES FOR AMERICAN CARS.

1. Packard, 30 h.p.; owner, J. E. Martin; driver, C. H. Embleton; 6:12 1-5.
2. Peerless, 45 h.p.; owner and driver, C. G. Wridgway; 6:21 2-5.

FIVE-MILES DEALERS' HANDICAP.

1. Packard, 30 h.p.; driver, C. H. Embleton (scratch); 5:40 2-5.
2. Olds, 8 h.p.; driver, L. C. Hutcheson (1 m. 30 sec.).
3. Rolls-Royce, 20 h.p.; driver, Hon. C. S. Rolls (scratch).

TEN-MILE INTERNATIONAL OPEN.

1. Renault, 60 h.p.; owner, W. G. Brokaw; driver, M. Bernin; 11:16 2-5.
2. Packard, 30 h.p.; owner, J. E. Martin; driver, C. H. Embleton; 11:28.
3. Peerless, 45 h.p.; owner and driver, C. G. Wridgway.
4. Westinghouse, 40 h.p.; owner and driver, A. M. Thackara, Jr.

KEELER LOWERS RECORD AT NEWARK MEET.

NEWARK, N. J., Nov. 6.—Undoubtedly the largest crowd that ever attended an automobile track meet in this country was present to-day at the complimentary races conducted by the New Jersey Automobile and Motor Club on the half-mile circle in Waverley Park. The crowd was estimated at not less than 25,000, and it spread itself around the entire course and utilized every point of vantage.

Ernest Keeler, the Oldsmobile Vanderbilt Cup driver, was the star of the meet. He lowered the track record to 6:07 1-5 and won the ten-mile open without much trouble.

Seventeen cars were started in the twenty-five-mile handicap, for which twenty entries had been received. About ten miles had been traveled when John Price drove a 26-horsepower Autocar into the outside fence on the last turn, and so many spectators swarmed onto the track that the race had to be called off. Several were struck, and a young girl was taken to the hospital with a broken leg.

The five-mile race for cars costing from $750 to $2,500 was won by M. H. Apgar in a 20-25-horsepower Pope-Hartford in 7:10, H. J. Koehler being second with his 22-horsepower Buick.

The five-mile race for cars costing from $750 to $2,5000 was $4,000 was won by Mr. Burman in a 45-horsepower Jackson.

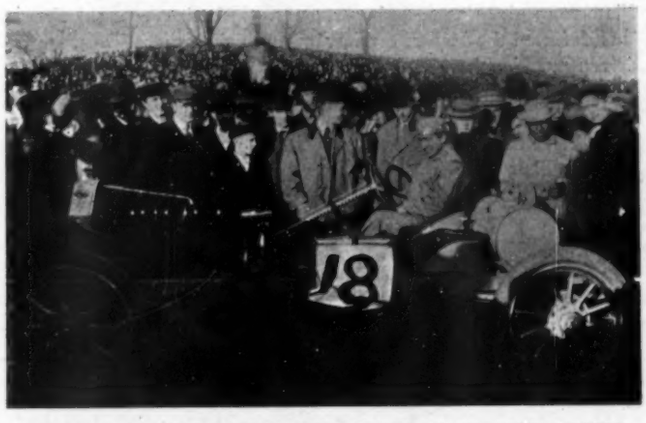
The seven-mile handicap for runabouts only was won from scratch by C. E. Fisher in a 24-horsepower Packard, C. R. Burroughs being second with another Packard.

The ten-mile free-for-all was run in two trial heats and a final. In the deciding heat Ernest Keeler took the lead in the second half mile with the 40-horsepower Oldsmobile and was never headed. He won in 12:41, R. A. Greene being second with a 30-35-horsepower Locomobile. After an exciting struggle during the last half mile E. J. Foley won the five-mile race for cars costing from $2,000 to $5,000. He drove a 26-28-horsepower Oldsmobile and his time was 6 minutes 55 seconds.

GUY VAUGHAN AND THE FAST TRAVELING STEARNS.

JURY NOT REQUIRED TO VISIT TRAP.

WORCESTER, MASS., Nov. 5.—Judge L. E. Hitchcock, in the Superior Criminal Court, ruled against D. F. Gay, attorney for the Worcester Automobile Club and representative of all cases appealed to the high courts by automobilists, convicted in the lower courts of speeding, sustaining the contention of the district attorney that a view of the traps in various sections of Worcester county would be expensive and at the same time would consume much valuable time and was also unnecessary.



KEELER, THE OLDSMOBILER, WHO BROKE WAVERLEY'S RECORD.

START OF TEN-MILE AT WAVERLEY PARK MEET, WHICH ATTRACTED THE GREATEST CROWD EVER SEEN AT A MEET.

A DARRACQ SERPOLLET 'BUS EN ROUTE TO BLACKPOOL.

THE MOTOR 'BUSES AT BLACKPOOL.

BLACKPOOL, ENGLAND, NOV. 1.—The motor 'buses were a prominent feature of the recent Blackpool meet, and though they were eclipsed by the speedier cars the public was genuinely interested in the two events for the ponderous vehicles.

According to the representative of *The Car*, who traveled from London to Blackpool on one of the 40-horsepower Darracq-Serpollet 'buses, there was not the slightest mechanical trouble to delay the car, which it predicts will shortly become a great feature of London traffic.

The Darracq-Serpollets were rated at 40 horsepower, while the Fiats were given as 24-40 horsepower. In both events the French 'bus defeated the Italian carrier, but each time there was a steam-driven machine farther down in the list. Once M. Serpollet himself was a beaten pilot.

During the running of the concluding day's events heavy rain fell when the motor 'bus races were on, and those on the outside had anything but pleasant experience. The summary of the two events follows:

STANDING MILE FOR PETROL OR STEAM, TWENTY-TWO-SEATED MOTOR 'BUSES, REGULATION BODIES.

First prize, silver cup, value £25; second prize, gold medal.

1.	M. Leprossi	40 Darrac-Serpollet	*0	0	—
2.	J. Watts	24-40 Fiat	0	17	—
3.	M. Serpollet	40 Darracq-Serpollet	0	29 2-5	—
4.	Thomas Glover	35-40 Crossley	0	30 3-5	—
5.	G. Gandry	40 Ryknield	0	31 1-5	—
5.	H. Spurrier, Jr.	35 Leyland	0	31 1-5	—

MOTOR-'BUSES: FLYING KILOMETER FOR 'BUSES, PETROL OR STEAM.

First prize, Guinness Cup, value £100, presented by A. Lee Guinness; second prize, gold medal.

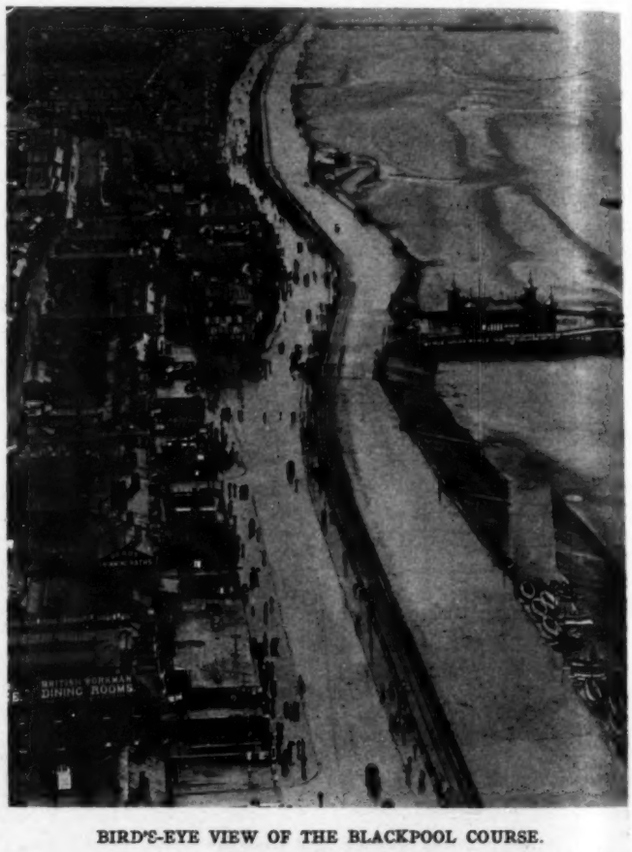
1.	M. Leprossi	40 Darracq-Serpollet	*0	0	—
2.	J. Watts	24-40 Fiat	9	4-5	—
3.	Thos. Glover	34-40 Crossley	11	3-5	—
4.	M. Fertille	40 Darracq-Serpollet	11	4-5	—
5.	H. Spurrier, Jr.	35 Leyland	17		—
6.	G. Gandry	40 Ryknield	30	2-5	—
7.	Alfred Bond	35-40 Crossley	54	4-5	—

* N.B.—In these events the winner's time was not stated. The times of the other entrants are given, therefore, as times in excess of the winner's time.

THE FIAT 'BUS WHICH WAS A BLACKPOOL PARTICIPANT.

THE CENTAUR'S FINAL ASCENSION OF THE YEAR

From Pittsfield, Mass., Saturday last, the *Centaur* made its final ascension of the year. Pilot Leo Stevens was accompanied by President Homer W. Hedge, of the Aero Club of America, and S. M. Butler, secretary of the Aero Club of America. Starting at 4:30 P.M., the *Centaur* traveled over the Berkshires before dark, and 156 miles were covered before the descent was made near East Haven, Conn. The barometer warned the aeronauts that they were near water, and the landing spot was only about 500 feet from the edge of the Sound. Caught in some trees, a call for help brought a fisherman, who quickly helped the balloonists from their perch. Captain Hedge was thrown against the basket when the car struck, but outside of a slight soreness he was not otherwise damaged. A daily paper printed an exaggerated story of the peril of the air navigators, but they spoke of the incident as having been of no particular account, and nothing out of the ordinary when making landings in places where there are trees or shrubbery.



BIRD'S-EYE VIEW OF THE BLACKPOOL COURSE.

C. F. BISHOP AERO CLUB'S NEW PRESIDENT.

One of the foremost patrons of aeronautics, Courtlandt Field Bishop, was elected to the presidency of the Aero Club of America at its annual meeting, November 5. Other officers elected were: First, second, and third vice-presidents, Captain Homer Hedge, D. H. Morris, and Colgate Hoyt; treasurer, Charles Jerome Edwards; secretary, Augustus A. Post; assistant secretary, Ernest L. Jones; consulting engineer, C. M. Manly; board of directors, C. F. Bishop, Alan R. Hawley, J. C. McCoy, Captain Hedge, and C. J. Edwards. It was decided to offer a trophy to be named the Lahm Cup for the longest balloon trip made in America by members of recognized American aero clubs, in which contestants must exceed 647 kilometers (about 400 miles). The club membership has reached a total of 238. Twenty-six actual ascensions have been made by club members in this country of which the club has records, and seven members have made successful flights in dirigible balloons and aeroplanes.

THE DOURDAN STRAIGHTAWAY TESTS.

PARIS, Oct. 22.—After several days of rain Sunday morning opened fine and a long string of cars at an early hour ran off southward from Paris carrying sportsmen to the official mile track of Dourdan. Being partly in the forest, however, wind and sun did not have free play and the course remained throughout the day rather too wet and greasy for best racing results. The interest of the day centered in the racing section which, unfortunately, was not very representative, despite the attendance of two English champions, Lee Guiness and Huntley Walker.

With his 200-horsepower eight-cylinder Darracq monster Lee Guiness covered the mile in 47 2-5 seconds, standing start, and with a flying start went over the kilometer track in 20 seconds. With the same car Hemery's time last December on the Salon-Arles road was 20 3-5 seconds. The present owner lowered this to 19 seconds (117.17 miles an hour) at the Ostend meeting last July, lowering the Ormond-Daytona record by 2-5 of a second. Sunday's performance was therefore not a record, though it was a fine run considering the nature of the roads. The Darracq's only opponents were an Itala and a Mors, which he easily defeated over both distances. In the light racer class. Huntley Walker's Darracq was fastest, but was disqualified for overweight. A long list of tourist classes was presented, classed according to catalogue price, and an interesting feature was the race for automobile taximeter cabs. The following are the official results in the racing section:

HEAVY CARS.	Mile Standing	Kilometer Flying
1. Darracq, 200-h.p., 8-cyl.; Lee Guiness	47 2-5 s.	20 s.
2. Itala; Longchamps	59 3-5 s.	29 3-5 s.
3. Mors, 120-h.p.; Thierry-Mieg		41 1-5 s.
LIGHT CARS (401 to 650 kilos).		
1. Gladiator, 30-h.p.; Leon Molon	1 m. 4 s.	31 3-5 s.
2. Bayard-Clement; Villemain	stopped	26 3-5 s.
3. Darracq, 80-h.p.; Huntley-Walker (Disqualified for overweight.)	59 2-5 s.	28 3-5 s.
VOITURETTES (less than 400 kilos).		
Vulpes (Barriaux)	1 m. 20 s.	44 3-5 s.
MOTORCYCLES (less than 50 kilos).		
1. Peugeot; Giuppone	1 m. 1 2-5 s.	28 s.
2. Peugeot; Cissac	1 m. 16 3-5 s.	28 3-5 s.
MOTORCYCLES (50 to 250 kilos).		
1. Anzani; Anzani	1 m. 5 2-5 s.	30 1-5 s.
2. Motori Contal; Pons	1 m. 32 2-5 s.	39 1-5 s.

1907 GRAND PRIX TO BE RUN ECONOMICALLY.

PARIS, Nov. 1.—The annual French speed contest has become a thorny question. After asking for and obtaining the opinion of the Chambre Syndicate de l'Automobile—a body representing the national constructors—the club committee met again this week. In view of the trade vote the club could not do otherwise than decide in favor of a race, and a resolution to this effect was passed without much discussion. The financial question proved far more difficult to settle and opened out a heated discussion among the members. Last year the Gordon Bennett contest, despite a long list of entries and a big attendance, only just paid expenses. This year entries were fewer, the public not so numerous, the $10,000 subvention from the Sarthe committee has only been partially paid, and the result is a serious deficit. With such a result it is not surprising that many members of the committee display little enthusiasm for a race on the same lines as last year. Had a shorter circuit been adopted, less money spent on luxurious fitting, and the course laid near Paris, instead of being a loss the race might have shown a profit.

The plan of changing ground every season is one of the most costly imaginable, and had the different amounts lavished on the Ardennes, Auvergne, and the Sarthe been devoted to a single course, the club would to-day have been in possession of a perfect track available each year at a very moderate cost. All these points were debated and suddenly put an end to by the intervention of M. René de Knyff, chairman of the sporting commission, who declared that his commission had received a proposition from a contractor independent of the club to undertake all the work of organization, and to support all charges, on condition that he took all the receipts. The proposition was not badly received, but as its adoption would rob the club of its independence and the general committee was not empowered to vote on such a question, it was referred to the excutive commission. Summed up, all that the meeting decided upon was the holding of a race in 1907. No other question was voted upon. It is certain, however, that when the race is held, it will not be as costly as was the Grand Prix of 1906. A short circuit—thirty or forty miles—is equally certain, though whether it will be a private, specially constructed track or over the national roads has yet to be settled.

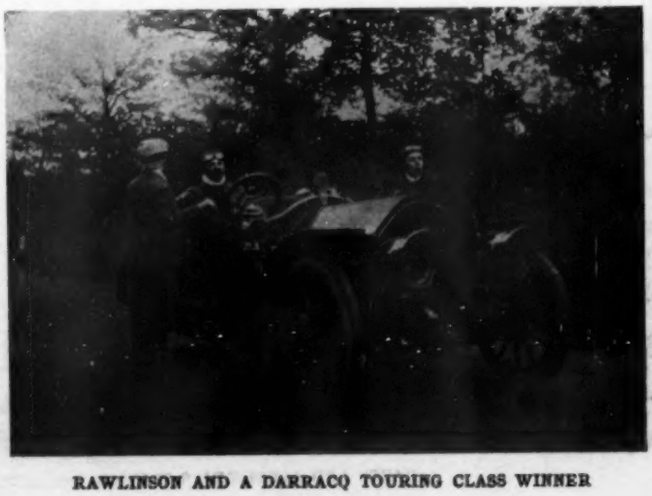
LEE GUINESS AND THE DARRACQ PERFORMER.

OPENING OF THE BERLIN SHOW.

BERLIN, Nov. 1.—The Berlin International Automobile Exhibition officially was opened to-day by Prince Henry of Prussia, who officiated in place of the Emperor, who is suffering from a cold. There are 500 exhibitors, and the show will continue for twelve days, being the most complete and extensive ever held in Germany.

At a dinner to-night Prince Henry announced that the Emperor had agreed to a plan for the formation of an Imperial Automobile Club, which will hold an annual international race next June, for which His Majesty will offer prizes.

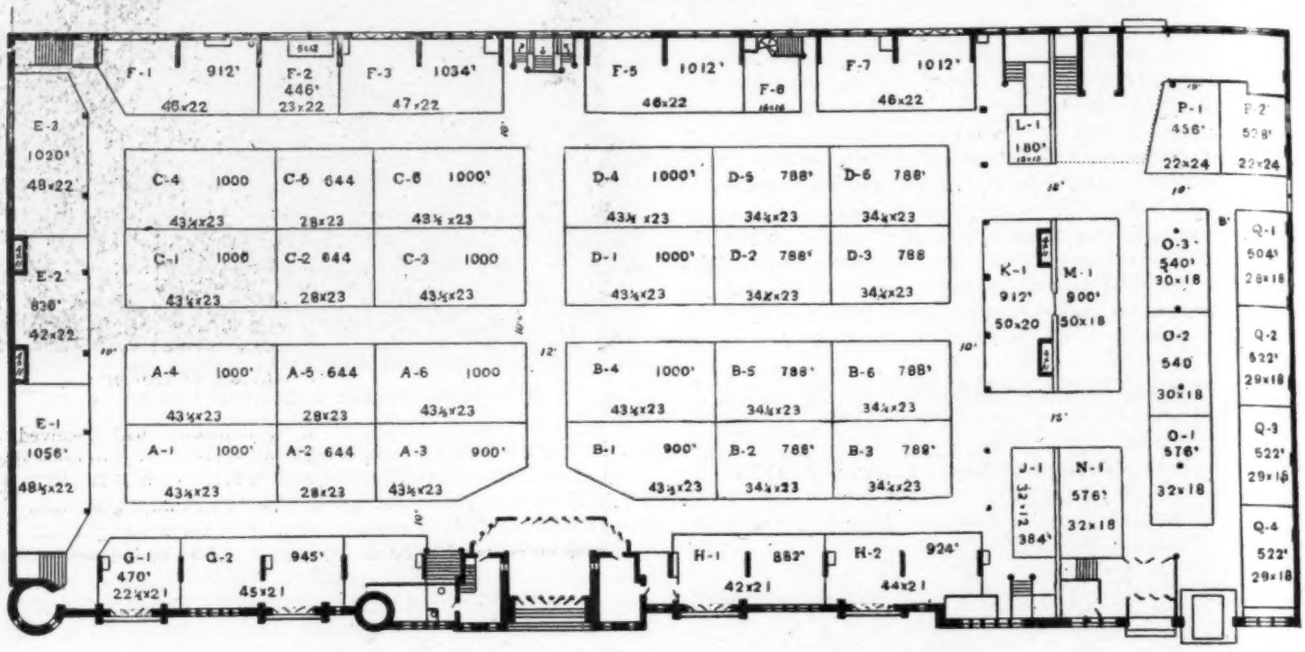
A reliability run for commercial trucks under the supervision of the French Ministry of War, to demonstrate their efficiency for military supply service, will be run November 19 to December 5, from Paris to Nice and return.



RAWLINSON AND A DARRACQ TOURING CLASS WINNER

SPACE ALLOTMENTS FOR THE CHICAGO SHOW

THE COLISEUM, THE COLISEUM ANNEX, AND THE FIRST REGIMENT ARMORY, FEBRUARY 2-9, 1907.



AUTOMOBILE SECTION, COLISEUM AND COLISEUM ANNEX, MAIN FLOOR.

COLISEUM—MAIN FLOOR.

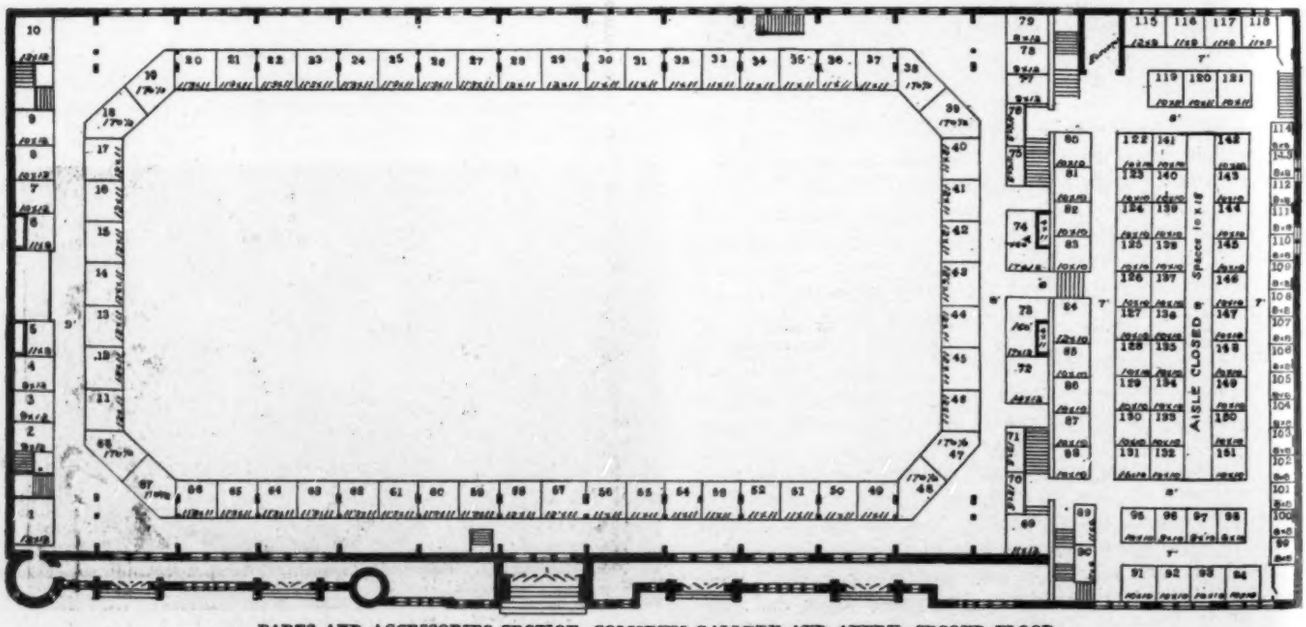
A1. Studebaker Automobile Co.
A2. Wayne Automobile Co.
A3. Winton Motor Carriage Co.
A4. Stevens-Duryea Co.
A5. Waltham Mfg. Co.
A6. Baker Motor Vehicle Co.
B1. Olds Motor Works.
B2. The Autocar Co.
B3. Royal Motor Car Co.
B4. Cadillac Motor Car Co.
B5. Babcock Electric Carriage Co.
B6. George N. Pierce Co.
C1. Locomobile Co. of America.
C2. Premier Motor Mfg. Co.
C3. Maxwell-Briscoe Motor Co.
C4. Packard Motor Car Co.
C5. Smith & Mabley Mfg. Co.
C6. E. R. Thomas Motor Co.
D1. H. H. Franklin Mfg. Co.
D2. Corbin Motor Vehicle Corp.
D3. Haynes Automobile Co.
D4. Peerless Motor Car Co.
D5. Elmore Mfg. Co.
D6. F. B. Stearns Co.
E1. Pope Motor Car Co.
E2. Thomas B. Jeffery & Co.
E3. Apperson Bros. Auto Co.
F1. National Motor Vehicle Co.
F2. Duryea Power Co.
F3. Electric Vehicle Co.
F4. Entrance to restaurant.
F5. Knox Automobile Co.
F6. St. Louis Motor Car Co.
F7. White Sewing Machine Co.
G1. Daimler Mfg. Co.
G2. Pope Mfg. Co.
H1. Dayton Motor Car Co.
H2. Woods Motor Vehicle Co.

COLISEUM ANNEX—MAIN FLOOR.

J 1. Lozier Motor Co.
K1. Mitchell Motor Co.
L1. Holsman Auto. Co.
M1. Reo Motor Car Co.
N1. Welch Motor Car Co.
O1. The Bartholomew Co.
O2. Grout Bros. Automobile Co.
O3. Northern Motor Car Co.
P1. Maumee Motor Car Works.
P2. Auburn Auto. Co.
Q1. Meteor Auto Works.
Q2. Columbus Buggy Co.
Q3. Cleveland Motor Car Co.
Q4. Matheson Motor Car Co.

COLISEUM GALLERY.

1. Diesemann Shock Absorber Co.
2. Sprague Umbrella Co.
3. "
4. "
5. Republic Rubber Co.
6. McGlehan Mfg. Co.
7. S. F. Bowser & Co., Inc.
8. "
9. "
10. Weed Chain Tire Grip Co.
11. Valentine & Co.
12. Gabriel Horn Mfg. Co.
13. Steel Ball Co.
14. Motor & Accessory Mfrs.
15. Wray Pump & Register Co.
16. Aurora Automatic Machine Co.
17. Motor & Accessory Mfrs.
18. Pennsylvania Rubber Co.
19. Chicago Battery Co.
20. Diamond Rubber Co.



PARTS AND ACCESSORIES SECTION, COLISEUM GALLERY AND ANNEX, SECOND FLOOR.

21. Diamond Rubber Co.
22. Hyatt Roller Bearing Co.
23. Whitney Mfg. Co.
24. Motsinger Device Mfg. Co.
25. Shelby Steel Tube Co.
26. Morgan & Wright.
27. "
28. Dayton Electric Mfg. Co.
29. J. W. Jones.
30. C. F. Splitdorf.
21. International Rubber Co.
32. "
33. R. E. Dietz Co.
34. McCord & Co.
35. Midgley Mfg. Co.
36. Hartford Rubber Works Co.
37. Hartford Rubber Works Co.
38. Fisk Rubber Co.
39. "
40. Badger Brass Mfg. Co.
41. "
42. Veeder Mfg. Co.
43. Gray & Davis.
44. (Half) Gray & Davis.
44. (Half) Goodyear Tire & Rubber Co.
45. Goodyear Tire & Rubber Co.
46. Rose Mfg. Co.
47. B. F. Goodrich Co.
48. "
49. Timkin Roller Bearing Axle Co.
50. Baldwin Chain & Mfg. Co.
51. Brown-Lipe Gear Co.
52. Spicer Universal Joint Mfg. Co.
53. Long Mfg. Co.
54. Swinehart Clincher Tire & Rubber Co.
55. Diamond Chain Mfg. Co.
56. Webb Mfg. Co.
57. Warner Gear Co.
58. A. W. Harris Oil Co.
59. G & J Tire Co.
60. "
61. Prest O'Lite Co.
62. N. Y. & N. J. Lubricants Co.
63. Warner Instrument Co.
64. Pantasote Co.
65. Schwarz Wheel Co.
66. Remy Electric Co.
67. Firestone Tire & Rubber Co.
68. Firestone Tire & Rubber Co.
69. Muncie Auto Parts Co.
70. Cook's Ry. Appliance Co.
71. Oliver Mfg. Co.
72. Edmunds & Jones Mfg. Co.
73. National Carbon Co.
74. Hartford Suspension Co.
75. Byrne, Kingston & Co.
76. "
77. Detroit Motor Car Supply Co.
78. Detroit Motor Car Supply Co.
79. Detroit Motor Car Supply Co.

COLISEUM ANNEX—SECOND FLOOR.

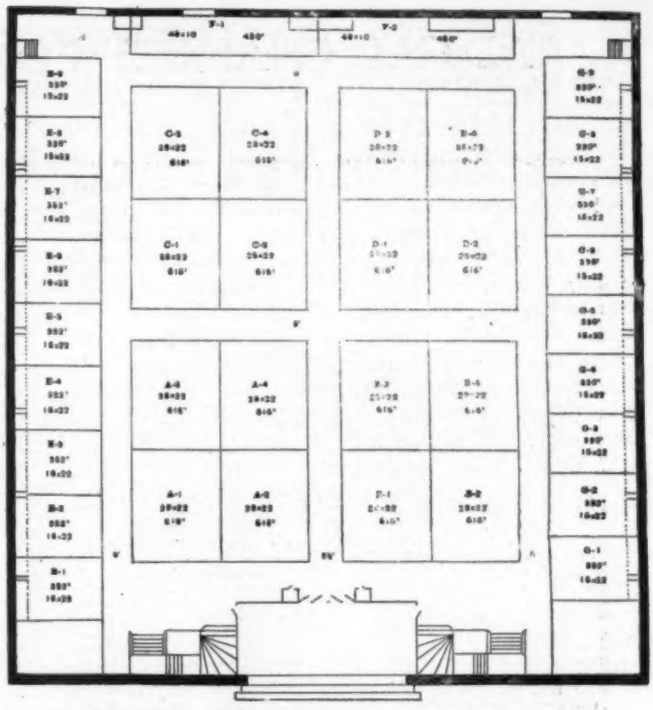
80. Western Malleable Steel Co.
81. Lipman Mfg. Co.
82. Hancock Mfg. Co.
83. Turner & Fish Co.
84. Joseph Dixon Crucible Co.
85. R. H. Smith Mfg. Co.
86. Rands Mfg. Co.
87. "
88. "
89. Atwater-Kent Mfg. Works.
90. "
91. Motor & Accessory Mfrs.
92. "
93. London Auto Supply Co.
94. "
95. Wm. Cramp & Sons Ship & Engine Building Co.
96. J. H. Sager.
97. Gemmer Engine Co.
98. Detroit Lubricator Co.
99. Consolidated Mfg. Co.
100. "
101. Bethlehem Steel Co.
102. "
103. "
104. "
105. "
106. American & British Mfg. Co.
107. American & British Mfg. Co.
108. American & British Mfg. Co.
109. F. M. Wheeler.
110. Imperial Brass Mfg. Co.
111. London Auto. Supply Co.
112. W. C. Robinson & Son Co.
113. Kilgore Air Cushion Co.
114. Avery Portable Lighting Co.
115. Kinsey Mfg. Co.
116. Hartford Auto. Parts Co.
117. Oliver Instrument Co.
118. W. S. Jones.
119. Hess-Bright Mfg. Co.
120. "
121. "
122. Hendee Mfg. Co.
141. "
123. Reading Standard Cycle Mfg. Co.
140. Reading Standard Cycle Mfg. Co.
124. Harley-Davidson Motor Co.
125. Doere-Clark Motor Car Co.
136. "
137. "
138. "
127. DeLuxe Motor Car Co.
128. "
129. "
134. "
135. "
136. "
130. Chicago Pneumatic Tool Co.
131. Chicago Pneumatic Tool Co.
132. Chicago Pneumatic Tool Co.
133. Chicago Pneumatic Tool Co.
139. Harley-Davidson Motor Co.
142. Triumph Motor Car Co.
143. Staver Carriage Co.
144. C. A. Tilt.
145. Chicago Coach & Carriage Co.
146. "
147. Fowler-Manson-Sherman Cycle Mfg. Co.
148. Reliable Dayton Mfg. Co.
149. "
150. W. S. Kessler.
151. Moline Pump Co.

FIRST REGIMENT ARMORY—MAIN FLOOR.

A1. Buick Motor Car Co.
A2. Rauch & Lang Carriage Co.
A3. Adams Company.
A4. American Loco. Auto. Co.
B1. Knight & Kilbourne.
B2. Dolson Auto. Co.
B3. Moon Motor Car Co.
B4. Nordyke & Marmon Co.
C1. Oscar Lear Auto. Co.
C2. Rainier & Co.
C3. Smith & Mabley, Inc.
C4. Rapid Motor Vehicle Co.
D1. C. H. Blomstrom Motor Co.
D2. St. Louis Car Co.
D3. Jackson Auto. Co.
D4. Aerocar Co.
E1. Western Tool Works.
E2. Evansville Auto. Co.
E3. Monarch Motor Car Co.
E4. Austin Auto. Co.
E5. Buckeye Mfg. Co.
E6. Kissel Motor Car Co.
E7. Logan Construction Co.
E8. Dorris Motor Car Co.
E9. C. A. Tileston & Co.
F1. Dragon Auto. Co.
F2. Palais de l'Automobile.
G1. Motorcar Co.
G2. Wayne Works.
G3. Pierce Engine Co.
G4. Bowman Automobile Co.
G5. Biddle-Murray Mfg. Co.
G6. Harrison Wagon Works.
G7. Simplex Motor Car Co.
G8. Moline Auto. Co.
G9. Star Auto. Co.

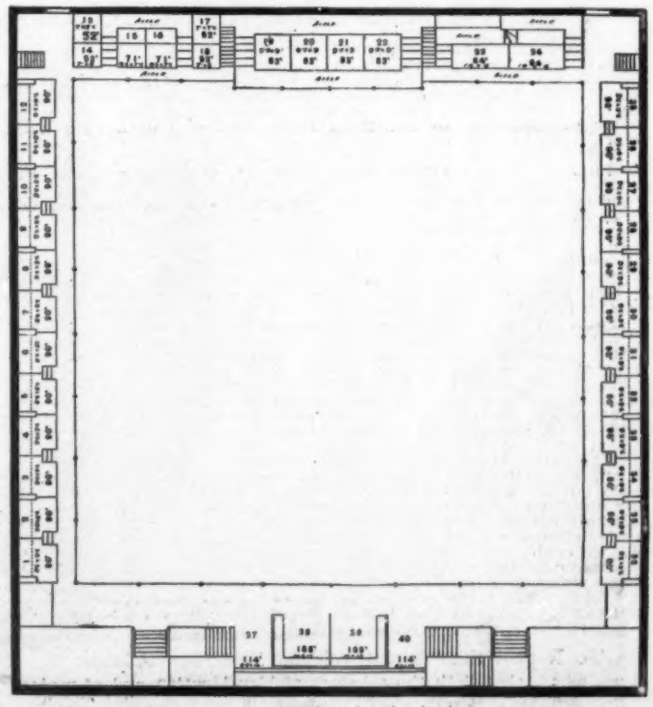
FIRST REGIMENT ARMORY—GALLERY.

1. Michelin Tire & Supply Co.
2. "
3. Acetyzone Company.
4. Electric Rubber Mfg. Co.
5. Vesta Accumulator Co.
6. Vesta Accumulator Co.
7. Standard Lamp & Mfg. Co.
8. Cycle & Auto. Trade Journal.
9. Witherbee Igniter Co.
10. Adapt Machinery Co.
11. National Oil Pump and Tank Co.
12. Horseless Age.



AUTOMOBILE SECTION, FIRST REGT. ARMORY, MAIN FLOOR.

13. The Auto Accessories Mfg. Co.
14. The Auto Accessories Mfg. Co.
15. The Auto Accessories Mfg. Co.
16. The Auto Accessories Mfg. Co.
17. The Auto Accessories Mfg. Co.
18. The Auto Accessories Mfg. Co.
19. Auto Supply Co.
20. "
21. "
22. Post & Lester.
23. Eugene Arnstein.
24. Eugene Arnstein.
25. Motor Way.
26. Thomas Prosser & Son.
27. Cullman Wheel Co.
28. Rushmore Dynamo Works.
29. Hensel Battery & Mfg. Co.
30. National Sales Corporation.
31. "
32. Chicago School of Motoring.
33. "
34. Beckley-Ralston Co.
35. "
36. "
37. Motor Age.
38. Continental Caoutchouc Co.
39. Excelsior Supply Co.
40. "



ACCESSORIES SECTION, FIRST REGT. ARMORY, GALLERY

RADICAL CHANGES FOR THE NEW JERSEY LAW

IT has become a well-substantiated fact that the Frelinghuysen law in New Jersey is far from being the ideal consummation of the automobile lawmakers' art, and is a disappointment to its authors and its friends, as well as a nuisance to the automobiling public. Commissioner J. B. R. Smith, who is at the head of the Department of Motor Vehicle Registration and Regulation in New Jersey, has prepared a statement containing a résumé of the conditions brought about by a four months' enforcement of the law, and advocates therein radical changes which will, without question, prove of great benefit to automobiling and place New Jersey in a more favorable light as a progressive commonwealth. In his statement to the public, printed in the Newark *Call*, Commissioner Smith, in part, says:

It is very evident that the Frelinghuysen bill is based upon the right principles. It has been productive of very good results, and in the broadest sense of the term it has been successful. Although there are still many violations, many cases of excessive and reckless use of motor vehicles, yet in every instance the reports which come from all quarters of the state conclude by saying that conditions are not nearly so bad as they have been in previous years. Some estimates place the decrease in violations as high as 75 per cent. There is no doubt that New Jersey, in the Frelinghuysen law, has laid the foundation for the solution of the question of legal regulation of the use of motor vehicles. The essential features of the law are these: The establishment of a department charged with supervising its enforcement; the licensing of drivers, as well as the registering of motor vehicles; and the vesting of discretionary power—both with regard to the issuing of licenses and registrations and the revocation of them—in the head of the department. Of course, no law can be enforced where there is a disposition among any considerable number to evade it, without adequate machinery. This was the trouble with previous legislation on the subject. I think it may be freely admitted that a large part of the fault with the present law is attributed to this same condition. The machinery for enforcing the present law, although much better than that of previous laws, is still inadequate for complete success.

The Identification Question a Pertinent One.

First, although the scheme of identification of vehicles in use in New Jersey is at least as efficient as that of any state with which I am familiar, it fails in accomplishing its purpose, because the marks can not be seen under those circumstances which make it most necessary for them to be seen. The car which is running at an illegal rate of speed, especially on a dusty road, can almost always evade identification, if its driver sees fit to have it do so, and the situation reduces itself simply to this: That the small offender—the one who only technically violates the law—is apprehended and punished, while the really guilty one evades identification entirely and escapes the penalties. I have no particular pride of opinion regarding a proper scheme of identification. I have given the matter considerable thought, and I am confident that an adequate scheme can be devised. I trust, however, that the plans in detail shall be worked out by the public, the essential features of which should be that the marks shall be visible under all conditions of light or darkness, speed or dust, to the ordinary observer at least three hundred feet away. It is possible, in order to make absolutely sure that no mistake is made this year in establishing an adequate method, that we say five hundred feet away, because the law on this subject has already been changed once, and it is unfair to motorists to put them to the expense of buying new identification marks every year or two. It is my desire that so perfect a plan may be developed this year that it will not only be the final word on the subject in this state, but will be generally adopted throughout the country. This brings me to what might be called my second recommendation, which is that we adopt a method of identification which may be interchangeable between states, in that way relieving tourists of the necessity of changing their identification marks every time they cross the borders of a state. On this subject much has been said, and rightfully, in condemnation of legislation which does not have interstate reciprocal features. A very great demand exists among motorists for an interstate registration. If I observe correctly, however, what they desire is not so much an interstate registration as relief from the necessity of changing the identification marks every time they pass from one state to another. The recognition of licenses by states other than the state of issue—although practiced by several of our larger commonwealths—is, I think, bad; first, because of the burden it places upon those who desire to obtain the names of the owners of cars whose identification marks they have secured; second, their inability to reach such owners after they have obtained their names; and, more important than all, in New Jersey, where the most potential sanction of our law consists in the power of revocation, a policy which recognized the registrations of other states would go far toward defeating our whole scheme of punishments. This need not, however, as suggested before, interfere with an interstate system of identification marks; and I see no reason why our legislature should not adopt the use of so perfect a system that we could, with perfect safety, register under our laws motor vehicles under the same marks which had previously been assigned by the registry of another state, providing the marks of that other state had, besides the number of the car, some independent state identification mark, consisting either of characters or letters, to designate the state of original registry.

To Repeal the "Arrest Without Warrant" Clause.

I am aware that both the schemes of identification and of registration which I have suggested will entail more original expense than our present methods do; but in the end I believe the actual cost will be less, and, besides that, I am of the opinion that a matter of a few dollars spent in this way would be of direct advantage to the motorist in protecting him from the annoyances now existing, because of the easy mode of counterfeiting. False registration is made easy because of the cheapness of our present method of identification, the only thing absolutely necessary being a pasteboard card with the number marked on with black crayon or paint. And, further, with a proper identification scheme, under our present law, which provides for service of legal process on the Secretary of State for non-resident autoists, we could very wisely abolish that present necessary evil of our law, the "arrest without warrant" feature, because, with a certainty both of identification and of obtaining jurisdiction, the need of immediate detention would be removed. Then, if the department were equipped with a sufficient corps of inspectors, vested with the authority of comparing registration certificates with identification marks, to make sure that motorists were not using false registration numbers—and the number of such inspectors would, in my opinion, not necessarily be large—it seems to me that we could well dispense with the "arrest without warrant" feature, which, it must be admitted, in far too many cases, affords a means for illegitimate and unlawful transactions, on the part sometimes of peace officers, but more often, I believe, of unofficial personages who avail themselves of this feature to protect them in their illegal practices. I do not know, indeed, that such a scheme as I have in mind should be applied to all classes of vehicles. The commercial trucks and those cars commonly designated as "runabouts" are not capable of excessive violations of the law under any conditions, and our laws might reasonably make exceptions of these two classes.

Personal License Has Proved an Unnecessary Burden.

The only prominent feature of the Frelinghuysen law which, to my mind, has not met the expectations of its friends, is that providing for personal examination of drivers. The licensing of drivers, as I have suggested, is most important. However, I am sure that all will agree that the personal examination, except in a few instances, has proven an unnecessary burden, both to the applicant and to the state; and I have no hesitancy in saying that this feature should be eliminated, except at the discretion of the licensing power. Such an examination as would adequately test the knowledge of the applicant can only be given at an expense greatly in excess of the receipts for licensing; while such a test, in most instances, would prove of little value, because few persons undertake to run cars who do not have a sufficient knowledge of the car to be careful; while those who are able to pass the best examinations are generally those who are capable of doing the greatest amount of damage. The fact is that every license that we have revoked, with one exception, has been that of a person who would creditably pass any examination.

Speed Restrictions Need Changing.

I wish that there might also be a restatement of our speed regulations, although on this subject I fear that the public may not yet be ready to act. Our law now provides for a maximum of twenty miles an hour in the open country, and fifteen miles an hour at intersecting roads and around sharp turns, while a maximum of twelve miles an hour is provided where houses are less than one hundred feet apart and eight and one-half miles an hour for intersecting streets and where traffic on the streets is heavy. I am free to say that the maximum for straightaway roads in each instance is too low, while that for the intersecting streets and where the traffic is heavy, in each instance, is too high. I do not recall that there has been a single instance of an accident having been reported to this office where the speed was simply excessive. In almost every instance where accidents occur there has been either an intersecting street or a sharp turn in the road, or the traffic has been heavier than the rate of speed warranted. And, further, while our law contains a proviso that no speed shall be maintained that is incompatible with safety and the correct use of the roads, not only autoists and the public, but the magistrates as well, fail utterly to take notice of this provision.

Other Important and Timely Recommendations.

Our legislature should also make certain of the more grievous offenses misdemeanors, so that extradition proceedings would lie. In this catalogue would be: Wilfully running without registration or under a false registration number; using a car without the consent of the owner; driving a car while in an intoxicated condition, and perhaps a few others.

There should also be devised some constitutional method for the issuing of short term or tourists' licenses; and while the proposition embodying these points, as presented in the original Frelinghuysen bill, was speedily rejected last winter, yet I believe that some measure of this sort is quite imperative.

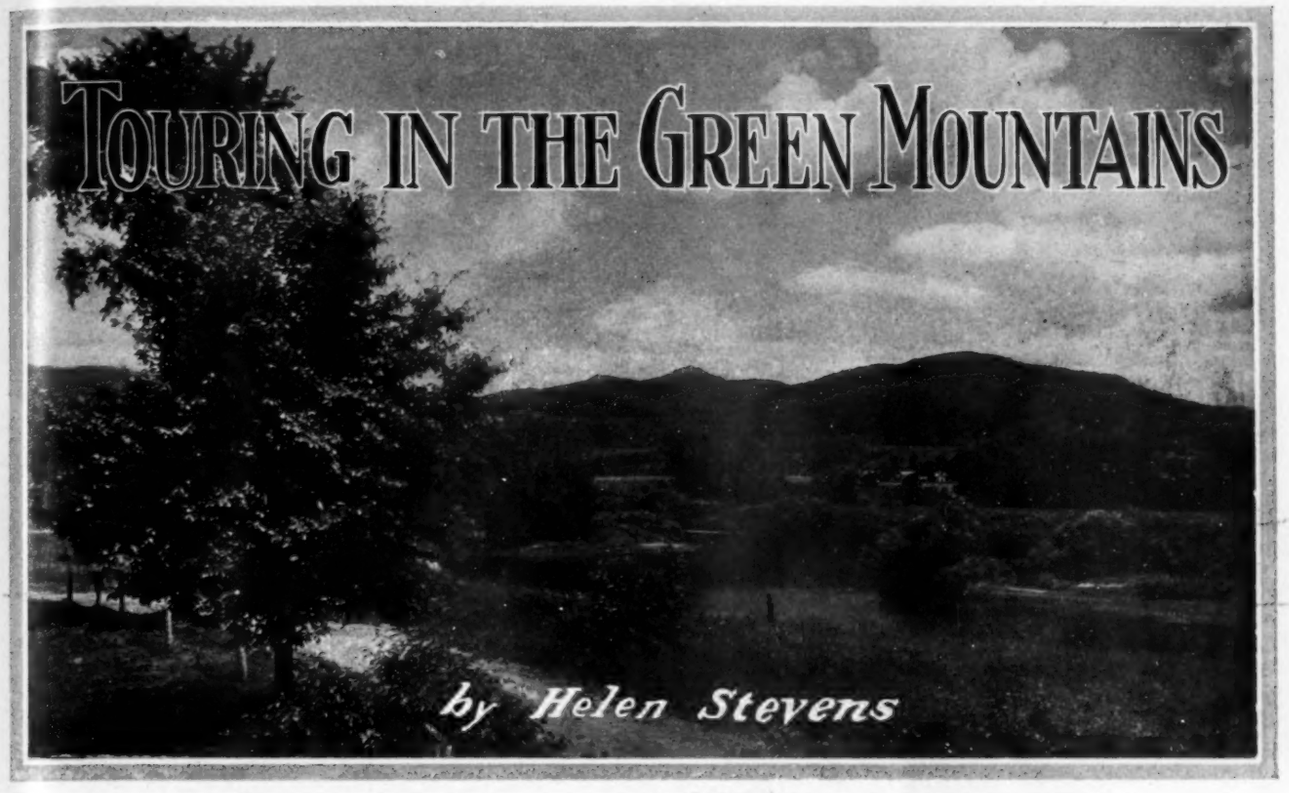
I wish also that the trial of automobile causes might either be vested in the Court of Common Pleas or in some special court possessed of technical knowledge of the nature of automobile offenses and of the value of evidence. While I do not desire to reflect upon the integrity of some of our courts for the trial of small causes, yet I do not think it too much to say that in too many instances the justice's knowledge of the subject at hand is not such as to fit him for rendering a satisfactory decision.

I think also that our legislature should provide this year for an appeal from the decisions of the commissioner in either denying or revoking licenses or registration certificates. While I am sure that, so far as I am concerned, and so far as anyone who will succeed me is concerned, we would use our best endeavors to act honestly and impartially, yet to err is always human, and the responsibility for final decision in the hands of any one person, it seems to me, is not in keeping with the spirit of our institutions.

At the time the law went into effect, I, in common with many others, had my doubts about the necessity of burdening the state with the maintenance of a large number of inspectors, and was in hearty sympathy with the act of the Legislature in limiting the number in the original bill. I am now, however, thoroughly convinced of the wisdom of this part of the law. It is without doubt one of the important features, and I hope that the number of paid inspectors will be greatly increased. I also hope that there may be appointed a limited number of public-spirited citizens (such as Mr. Scarritt and Mr. Morgan have proved themselves to be) who are glad to render valuable service without compensation, for the good of the cause.

TOURING IN THE GREEN MOUNTAINS

by Helen Stevens



AS THE TOURIST APPROACHES MOUNT KILLINGTON ON THE ROAD NEAR RUTLAND, VERMONT.

IN these days of automobile touring, Vermont, with its excellent roads and fine mountain and lake scenery, should attract many lovers of the sport who seek sane and full enjoyment of the highway rather than speed records. Small as is the state, it offers half a dozen runs of a hundred miles or more which are well worth while. Of these, the trip from Bennington through Rutland to Burlington, disclosing the beauties of the Green Mountains, is, perhaps, most worthy of detailed description.

Starting from the Battle monument on North street in Bennington, one crosses the bridge over the Walloomsac river and takes a turn to the right just after crossing another bridge a very short distance beyond. This new road leads over the railroad tracks, after which there is a straight run to South Shaftsbury and Shaftsbury. After leaving the latter place by the right fork, the railroad is crossed and recrossed, and the road parallel with the track is followed through Arlington to Sunderland.

Here, after a journey of twenty miles, one leaves the railroad and bears away to the left until the pretty town of Manchester is reached. The road is still to the north, west of the railroad, past Barnumville to East Dorset, where the railroad tracks are again near all the way through North Dorset, Danby, South Wallingford and Wallingford. At this last place the railroad is crossed and Otter creek, the largest river in Vermont, is followed through Clarendon and up Kelley road, until the outskirts of Rutland are reached, when the stream is crossed at River street, and one follows River, Forest, Pine, West and Park streets to Main street.

A PICTURESQUE BEND IN OTTER CREEK.

Rutland is fifty-five miles from Bennington, and thus a little less than one-third of the journey has been covered. But the remaining two-thirds which are to end on the shores of Lake Champlain are even more beautiful. From Main street the route leads past the cemetery on the right to Centre Rutland, where a turn to the right is taken, and the railroad and Otter creek are followed past Proctor (on the other side of the stream) and Sutherland Falls, through Pittsford and along the left fork, beside the river to Brandon. Crossing the stream again, a run of five miles brings one to the little village of Sudbury, where a rest may be taken among surroundings which are particularly picturesque. From here, bearing to the right, the automobilist next passes through Leicester to Salisbury, where, if desired, a visit may be made to Lake Dunmore, only a mile away to the east, and a favorite camping ground of Ethan Allen and the "Green Mountain Boys" in the days of the Revolution. As West Salis-

BENNINGTON, VT., FROM BATTLE MONUMENT

FALLS OF OTTER CREEK, PROCTOR, VT

bury is approached the left fork of the road is taken, leading through that village to Middlebury, where both railroad and creek are crossed and a turn made to the right. The stream also turns at this point, and the road lies beside it almost due north for some distance, when the creek is once more crossed and the road followed to Vergennes, the oldest city in New England, which is 97 miles from Rutland and 152 miles from the starting point at Bennington.

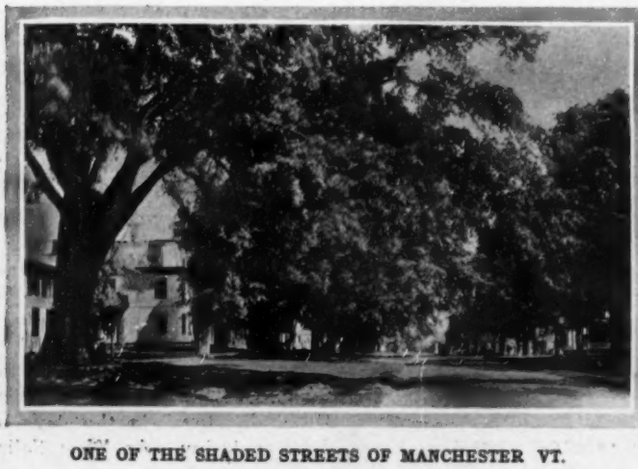
Up to this point the roads have been first class, and the scenery of the valley along the winding course of Otter creek delightful in its constant changes. But from now on until the end of the trip the scenery in the vicinity of Lake Champlain is to be finer still, and the roads are to be superlatively good. Crossing the railroad tracks at Vergennes station, a turn is made to the left and the road followed through Ferrisburg to North Ferrisburg. One mile north of the latter place the route touches closely on the shores of Lake Champlain. The road beside the railroad is followed until a turn to the right is taken, which brings one to Charlotte Centre. Here one bears back again to the left to Shelbourne, and along the Shelbourne Bay district, on to Shelbourne street, and thence via South Union street to Main street and City Park, the center of Burlington, having covered 174 miles.

No other trip of equal length, not to speak of equal beauty, can be taken on uniformly good roads entirely within the confines of Vermont, but there are many other popular routes, among them being those from Rutland to Pittsfield, Mass. (95 miles); Rutland to Greenfield, Mass. (113 miles); Bennington to Troy, N. Y., via Hoosic (30 miles); Rutland to Bellows Falls, Vt. (50 miles); Rutland to Glens Falls. N. Y. (53 miles); and Bennington to Brattleboro (40 miles). Year by year the number of tourists will increase.

VERMONT'S NEW GOVERNOR ON AUTOING.

MONTPELIER, VT., Nov. 1.—The new governor of Vermont, Fletcher D. Proctor, in his inaugural address delivered here before the General Assembly, made the following reference to the automobile question:

"Automobiles have come to stay, and they have their proper and rightful use in the pleasure and business of many people. They are likely to fill, gradually, a greater rather than a less place. For those who can afford them they are the most advanced method of highway travel. Besides their use by our own people, they probably help to bring summer residents and visitors into the state. Where they have been used longer, and are most used, in and about cities, they are practically ceasing to be a menace to horses. In any action with reference to automobiles these facts should be taken into account. At the same time, during this transition period many of the men, women and children who are living up and down our hills and valleys are practically banished from the use of our highways, both for the purposes of business and pleasure. Business in many of our communities is being seriously interfered with because the people are kept off our highways by the fear of meeting automobiles. In time our horses will probably become so familiar with these machines that much of the present difficulty may be removed; but pending that time I do not think it right that so many of our people should be deprived, to the extent they now are, of their natural and rightful use of the roads. We may well consider whether, for the present, automobiles should not be prohibited the use of certain highways, especially some of our narrow hill roads, where the passing of a team and automobile is impossible without great danger to the occupants of the team."



ONE OF THE SHADED STREETS OF MANCHESTER VT.

A VIEW OF LAKE CHAMPLAIN, NEAR BURLINGTON

HOW TO IMPROVE AN OLD CAR

By VICTOR LOUGHEED.

THERE is a variety of reasons that may make it expedient or desirable to bring an out-of-date automobile into the best possible working condition, by a process of remodeling or repair.

Of the great army of automobile users, only the comparatively few—lacking financial limitations, or because of previous non-addiction to the motoring pastime—are able to boast possession of the season's newest model. It is the commoner lot to make shift with a car that is a year or so old at least, especially now that certain standards of reliability are so well established as to give to both the hold-over and the second-hand car, definite and recognized utility values.

Thus has been created the problem of using the out-of-season model—the car that is too old to be satisfactory, yet too new to be discarded. The solution lies midway between the two extreme courses—in remodeling, a task that if done conservatively and intelligently will repay for itself in a hundred ways, too obvious to require specific mention.

There are two chief questions to be decided, before undertaking a more or less general conversion of an old car. First, what details can with advantage be changed, and how; second, what details is it expedient to let alone, and why? These decisions can be made correctly only after studied consideration of all of the requirements of the given case. To generalize, however, it may be stated that a change is called for in every device that is worn or obsolete, but can be renewed, repaired, or discarded without undue cost.

To consider the subject systematically, it perhaps is well to commence with the fuel tank, where is stored the fluid by which the car is run. If this tank is made of galvanized sheet iron, which is subject to rust, the least signs of external or internal breakdown will furnish an excellent excuse for substituting a tank of copper—a material that is superior in almost every essential respect.

The Problem of Proper Fuel Feed.

Many early cars were noted for their insufficient gasoline capacity; so it may not be amiss to fit a larger as well as better tank. The possibility of running out of fuel unawares, far from any ready renewal of the supply, is one of the stock mishaps that inspire a sense of the ludicrous in all but the victim, and may befall the careless as well as the unwise. There are tank designs available, in which a gallon or more of the precious fluid is automatically retained as a reserve—to be drawn upon as a means of reaching home after the main supply has given out. The provision of a tank like this is an ounce of prevention well worth having on any car.

From the tank, the fuel flows through a longer or shorter pipe to the carbureter. In most old cars this pipe is full of unnecessary kinks and curlycues, but distinctly shy on much-needed stop-cocks. The ideal equipment is a direct feed, of large-diameter tubing, with a stop-cock close to the tank and another close to the carbureter. With this, the cock nearest the carbureter will be used normally for turning the fuel on and off, while the one by the tank may serve in an emergency to prevent waste of gasoline, or possibly fire.

Much trouble is experienced in some cars with the fuel pipe breaking off from vibration, close to the carbureter. A sure cure for this is a short section of flexible metallic tubing substituted for the section subject to breakage. Such tubing can be had down to one-quarter of an inch in diameter, and capable of withstanding without leakage any pressure from an ounce to a thousand pounds.

Carbureters of a short period ago were decidedly tricky contraptions in comparison with their best present prototypes. Results in every way superior can be gained with most old cars by fitting them with a good modern carbureter. Or, if the expense or the difficulty of this seem prohibitive, at least it may be practicable to convert a non-compensating carbureter into one that will compensate. Provision for increased air admission at higher speeds is all that is necessary. This can be obtained by fitting a sort of automatic inlet valve about as well as by any more elaborate revision. And ingenuity and experiment will determine correct lift, diameter, spring tension, etc., much quicker than will theory. The "tickler," for priming a carbureter by flooding it, is a feature of many early types that is conspicuous by its absence or its inadaption to its purpose. Yet it is as necessary as its provision is simple and inexpensive. Rearrangement of the intake piping, though not always an improvement characterized by low cost, is capable of being applied with advantage to some cars of surprisingly recent manufacture. For all of the cylinders of a multicylinder engine to work the same, it is clearly essential that all communicate with their common source of fuel by substantially equivalent means. Therefore, piping not symmetrically dimensioned, forked, and curved, or without increased space within the joints, is not difficult to replace with better.

Valves, Compression, and Bearings.

The valves of old engines not infrequently carry a share of the responsibility for faulty operation. Automatic inlet valves, for instance, though once common, now find little vogue. To provide for their mechanical actuation, while fairly expensive, will result usually in increased power and reduced trouble. The change, however, will require new cams, push rods, rockers, etc., more or less, according to the manner of effecting the improvement. The valve springs will need to be heavier for the mechanically-operated valves than were used for the automatic.

A common defect of early practice consisted in the use of valves too small, with required area of opening secured by excessive lift. Also, early valves were made of steels less adapted to resist heat than the high-nickel valve steels of the present day. For these reasons, new valves, possibly slightly larger than the old, and with lessened lift, if the valve seats will stand boring to larger diameters, may prove advantageous.

The engine compression was often too low for the very best results in cars of a very early vintage, and if in one of these the combustion space is larger than a fourth or fifth of the cylinder volume swept by the piston, there may be more good than harm in reducing it. The simplest means of doing this is to screw a plate of iron into the combustion chamber, against the cylinder head. Some repairmen attach the plate to the piston, but the addition of weight to this moving part is very obectionable. Loss of compression is an ill common to nearly all cars that have seen much use. New piston rings are a palliative; slight reboring of the cylinder in addition may be necessary to a thorough cure. In extreme cases, so much reboring may be required as to make new pistons necessary.

The bearings of most old cars are full of trouble, and complete refitting or replacement of them all is one of the surest ways of bringing the whole mechanical assemblage as nearly as possible to its new condition. Plain bearings can be shimmed together and scraped, or in extreme cases provided with new "brasses." Perfectly to renew badly worn babbitt

bearings requires that the babbitt be remelted and recast. Ball bearings of the annular type, if they have not been abused, and have been large enough, probably will be in better condition than almost any other portion of the mechanism. If they are worn, there is nothing for it but to replace them completely—both races and all of the balls.

In some cases of remodeling, where the result is to be held paramount to the expense, it may prove advantageous to substitute ball bearings for plain bearings, especially in the change-speed gear. Plain cylindrical seats on shaft and in housing, allowing light driving fits, are the extent of the machining involved, and the amount of lateral space required is very small. But the diametral room annular ball bearings occupy will be found to preclude their application in many instances, while in others there are inseparable mechanical difficulties that prevent them.

Other Common Points of Weakness in Old Cars.

The cooling system is a point of weakness in many first models, and in the light of the most modern practice may present very definite opportunities of improvement. A cooling system, for instance, in which there is a water tank, rarely will need the water tank if a proper radiator be substituted for the less efficient device of the earlier system. Also, most early piping systems will bear changes well, being capable of even more improvement than that obviously made possible by the abolition of the tank. Larger piping usually will be a first requirement, not alone to ease the pump's work, but also to facilitate thermosyphon circulation in the case of pump breakdown. A gear or chain drive for the pump will be an improvement over the belts that were often depended upon before designers learned better. As for the kind of pump, the rotary gear pump is the more positive, but a centrifugal pump opposes less resistance to thermosyphon circulation should it become inoperative.

The addition of a fan behind any radiator not already provided with this now-recognized essential is likely to produce a marked reduction in any tendency of the engine to overheat when the car is running slow. With some motor arrangements, however, the provision of the fan drive will constitute a severe test of mechanical ingenuity.

The ignition system is universally recognized as a source of trouble enough, even in its best modern types, so it goes without saying that any out-of-date system of ignition will contain enough elements of unreliability to make its complete or partial renewal the soundest of sound policy.

Commutators of early types often are distinguished by poor bearings and contact devices, which result in rapid wear and wrong adjustment. These, in turn, cause faulty timing, exceedingly difficult to rectify. The best road to improvement consists in the substitution of a new commutator for the old one. It is easily fitted.

If by any chance an old car has happened to retain one or more spark plugs of a very early type, these will be replaced with modern ones as a matter of principle, if for no other reason. There is nothing about a spark plug, even of modern type, that does not tend to become worse with use, so new plugs are always advisable if there is the remotest possible doubt about the quality of the old ones.

The wiring of an old car usually will stand overhauling with a view to simplification of circuits and improvement of insulation. Many early ignition systems involved an amount and complication of wiring that present practice regards as wholly unnecessary. Also, the necessity for proper insulation of high-tension circuits was less realized than now, so the introduction of a few yards of modern high-tension cable may work wonders in preventing short circuits.

Duplication of parts of the ignition system is common practice with some of the best up-to-date cars; various schemes of double circuits, double sets of plugs, and alternative sources of ignition current are recognized good practice. Consequently, to equip a car in this manner can hardly fail to improve it, if the job be done in a workmanlike manner. Substitution of a dynamo, magneto, or storage battery in place of dry cells tends to improve the reliability of the current source.

(To be concluded.)

FRANCE MAY HAVE A SPECIAL SPEED COURSE

PARIS, Oct. 23.—It is now certain that the Automobile Club of France will organize a road race in 1907, as in previous years. Owing to differences of opinion and some difficulty in coming to a decision, the Club Committee asked the Chambre Syndicate de l'Automobile—a body representing the manufacturers of France—to give its opinion. Last year the same question was raised, the same difficulties presented themselves, and the Chambre Syndicate was asked for advice. On that occasion the manufacturers voted unanimously for a race, minus two members who abstained from voting, and the Grand Prix on the Sarthe Circuit was the result. This week the question of a year ago was again put to the Chambre Syndicate, with exactly the same result, all voting for a race except two members who remained neutral. It now remains for the Automobile Club of France to officially declare its intention of organizing a race, and to ask the Sporting Committee to frame the regulations. This will be done without loss of time.

A keen discussion is likely to ensue on the conditions of next year's contest, and it is probable that the present regulation imposing only a weight limit may have to give way for a limited power clause, a minimum bore or minimum cylinder capacity with a minimum chassis weight finding favor with many.

That French constructors are becoming more and more afraid of a foreign victory in one of their big road races is evident by the declaration of M. Brasier: "We constructors ought to be obliged every year to prepare racers in order to make experiments and seek out improvements. But, once the cars are ready, it would be better not to race them. The automobile industry would thus have all the benefit of a preparation for a race without us being obliged to play into the hands of foreigners, by offering them a chance to take the revenge so ardently desired."

The Chambre Syndicate also unanimously voted, on the proposition of the Marquis de Dion, who is not a racing man, "That the speed contest shall be held on a short circuit destined to become a permanent course, and on which all similar races shall in future be held."

In France no such difficulties as those encountered by the A. A. A. are met with. With a big detachment of troops and effective barricading the crowd is easily kept back.

The Baron de Türckheim, head of the De Dietrich firm, is afraid of such a course, fearing that it would lead to several races each year, while but one is wanted. M. Brasier shares the same opinion, and is also afraid that such a track would favor the development of freak machines driven by acrobat-chauffeurs. The Marquis de Dion's plan is to form a circuit in some mountainous region, the roads being especially constructed, so as altogether to avoid the public highways. Such a plan receives a certain amount of support, for a special track would be useful to manufacturers to test their machines, racers and others. The difficulty is to find a suitable country near Paris. Auvergne, with all its natural advantages, is too far from Paris to be of practical use.

MORE ABOUT FORCE FEED LUBRICATORS

IN order to economize space in mechanical force feed lubricators it is usual to place the pumps, which may vary in number from one to ten or twelve, or even more, in a row and in a vertical position. Each pump is positively driven from an overhead rotating shaft by a yoke and eccentric or equivalent device, in some cases the shaft extending through a stuffing-box in the wall of the casing in order to prevent leakage of oil and being direct driven by means of suitable means, or else it is driven through spur or bevel gearing mounted on a secondary shaft so as to obtain a reduction of speed. Where there are not too many pumps a single yoke is sometimes used to move all the plungers simultaneously; in a lubricator where there are many pumps they may be divided into groups, each group operated by a single yoke and the eccentrics which operate the yokes are set at equal intervals on the shaft, like the cranks of a multi-cylinder engine. Another way is to have a separate eccentric for each pump, direct connected to the plunger rod, or, as in the instance mentioned, working each plunger through a yoke. A plan of driving that has found a wide use is to raise the plungers mechanically, as by a cam, against the pressure of a spring, and then release the plunger and allow it to be forced back by the pressure of the spring. The pumps, it may be said, are of the single-acting type, drawing oil into their cylinders on the up stroke and forcing it to the bearings by way of the feed pipes on the down stroke. The plungers are solid and are fitted with extreme care to the long cylinder bores, so as to give an ample bearing area. The ports are merely passages in the casting in which the bore is formed, and when valves are used they are simple check valves consisting of little balls of steel or bronze seated in the ports, some being pressed to their seats by springs and others being sufficiently held by gravity and the pressure of the oil.

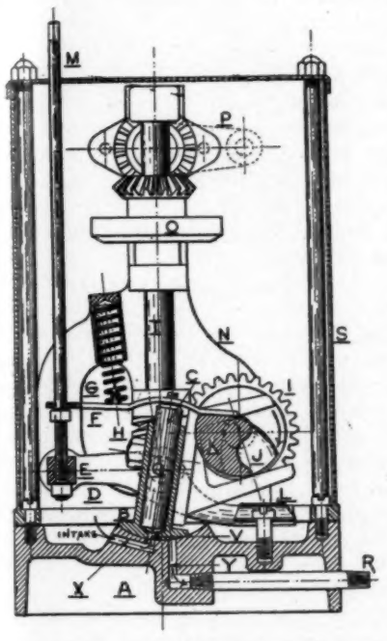


FIG. 1.—OSCILLATING PUMP LUBRICATOR.

Fig. 1 is a transverse section through one pump of a widely used type of mechanical lubricator in which there are no valves, the pump cylinders oscillating and causing the ports to register alternately. The cylinder is pivoted on trunnion *Q* and its lower end is curved on the radius of the center of the trunnion, as is also the seat in which it works. The intake port *V* opens directly from the oil containing case *S*, while the outlet port communicates with the pipe *R*, the end of which is threaded for connection with the feed pipe. The base plate *A*, upon which the mechanism is built up, is an iron casting.

The pump plunger is shown at the lowest point in its stroke and the port in the cylinder is registering with the intake port *X*. Cam *K* now raises the plunger through lever *F* and oil is drawn in, the cylinder remaining stationary until the intake stroke has been completed. When the cam has raised the lever *F* as high as possible, the lever rides on the arc which forms part of the contour of the cam and holds the plunger stationary with relation to its cylinder while a second cam *J* on the same camshaft rocks the cylinder until its port registers with the outlet port *Y*. When the two ports have been brought together the overhanging end of the cam *K* passes its bearing on the lever *F* and the lever, which, in ascending, compressed the spring *G*, is forced downward by the recoil of the spring, of course sending the plunger *C* down and forcing oil out through the port and into the feed pipe.

The driving mechanism is arranged to give a considerable reduction of angular velocity between the driving pulley and the camshaft. Instead of a pulley a ratchet device can be and often is used so that a reciprocating rod actuated by some part of the engine gives an intermittent rotating motion to the main shaft. A ratchet lever is shown at *P* (Fig. 1) in dotted lines. The shaft rotated by the ratchet extends through the wall of the casing *S*, passing through a long stuffing box which at the same time forms a bearing of good length. The lever is of course on the outside, while inside the case the shaft carries a small bevel gear meshing with a similar gear on a vertical shaft, *I*. The vertical shaft carries at its lower extremity a worm *H* meshing, with a large gear on the camshaft, the worm and gear giving the required reduction. The quantity of oil fed is regulated by varying the length of the plunger stroke, the rod *M*, extending to the outside of the casing at the top, where it is easily reached, being the adjusting means. In a short stroke only part of the lift of the cam is utilized.

While an oiler of this type is not liable to derangement, and its action is extremely steady and reliable, the driver of a car frequently wishes to have some arrangement that will enable him to actually see the oil flowing and assure himself that there is no stoppage of the supply. For this purpose "sight feeds" are used. A sight feed is nothing more or less than a little glass tube inserted in the pipe line so that the oil can be seen as it passes on its way. In this oiler the sight feed would most likely be attached at *R*; but this is not necessary, as the device can be inserted almost anywhere in the pipe line. Not infrequently the lubricator is placed under the footboard or under the hood and piped back to the dashboard, where a series "bank" or "gang," of sight feeds is placed where the operator can see it easily and assure himself that the pump is running. Sight feeds are also very useful for regulating the rate of feed of each pump, though for this purpose "bleeders" are also much used. A bleeder is

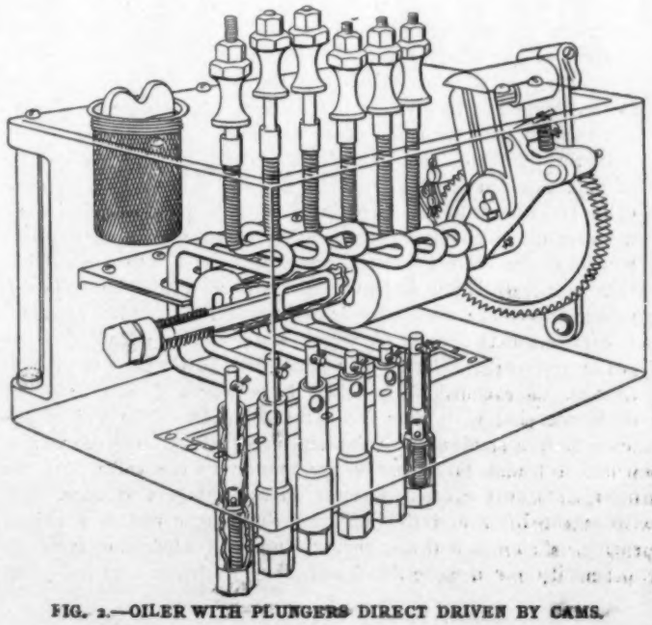


FIG. 2.—OILER WITH PLUNGERS DIRECT DRIVEN BY CAMS.

merely a little two-way cock which temporarily diverts the flow of oil from the feed pipe and lets it drop out where the operator can see it. When he is satisfied that the rate of flow is correct the cock is turned back to running position and the oil sent to the feed pipe.

Fig. 2 shows a mechanical lubricator in which the pump plungers are actuated by cams direct. There are two cams mounted on a common shaft, each cam acting on three pumps

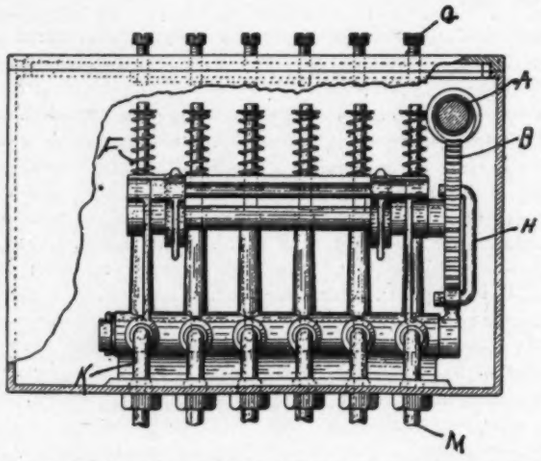


FIG. 3.—LUBRICATOR WITH OSCILLATING VALVE UNDER PUMPS.

and lifting the plungers against the pressure of springs, which bring the plungers down on the delivery stroke, just as the lubricator previously described. The method of communicating motion to the plungers on the up stroke is different, however, and is decidedly simple. To each plunger rod is attached a steel rod bent to form three sides of a rectangle and placed, as the illustration shows, with the open part at one side. The upper end passes through the top of the casing and the extremity is threaded and fitted with an adjusting nut and a lock nut. On the straight part of this rod, just below the top of the casing, is the spring which acts through the rod to force the plunger down when the cam is descending. When the nut on the top of the rod is brought up until it is even with the extreme end of the rod, the pump plunger is given its full stroke and therefore delivers its maximum volume of oil. If, however, the nut is screwed down it will draw up the rod, and the plunger with it, against the pressure of the spring, and the plunger will be raised from the bottom of the cylinder a distance equal to the distance the nut is screwed down on the rod, plus clearance, of course. Thus the cam, in rising, will carry the rod as high as ever, but the nut will seat on the top of the case and stop the descent of the plunger before the cam reaches its lowest point. The camshaft is ratchet driven in the oiler illustrated, and this is so designed as to give as slow a rotation as is necessary, without the necessity for using other shafting or any gearing.

In the lubricator shown in Figs. 3 and 4 there are a number of details which differ from those already described. The pump cylinders rise from and are integral with a hollow horizontal member in which is a long rotating valve containing passages which, as the valve oscillates, bring the pumps into communication with the oil tank and the outlets alternately. The same reference letters are used in both Fig 3 and Fig. 4. The camshaft *C* carries the two cams *D*, which work in two yokes *E* at opposite ends of the long lifter through which pass the plunger rods *F*. The camshaft is driven by a worm *A*, on the pulley shaft, meshing with gear *B* on the camshaft. The rod *H* extends from a small arm on the long valve to the large gear, from which it transmits an oscillatory motion to the valve. As the lifter rises on the cams it raises all the plungers at once. Between the lifter and the top of each plunger rod is a helical spring, as shown, and this spring is under compression sufficient to permit the rod to be lifted and oil to be drawn into the pump through the valve which has been rocked into the proper position. Suppose, however, it is desired to shorten the stroke of one of the pumps and reduce the amount of oil delivered by it. The little screw immediately above that particular pump, passing through the top of the casing, is screwed down. As the plunger rod rises on the lifter bar its upper end comes in contact with the screw and it stops, and the plunger of course stops, too, with only a partially filled cylinder. The lifter must continue to rise, however, and in doing so it merely compresses the spring. Coming down again, the lifter comes against a little collar and drives the plunger down positively. Thus the spring is used only during the up stroke, and even then it is passive except when the pump stroke is shortened. Sight feeds or bleeders may of course be used with this as with other mechanical lubricators.

There is a type of mechanical lubricator in which a single pump sends oil through a plurality of feed pipes. In one style of this pump there is a sort of little turntable rotated by a vertical shaft. The bottom of the turntable is a close fit in a bed in which it rotates, and in the bed are a number of oil passages, as many as there are oil pipes to be fed. On the turntable is the pump, the outlet from which is so placed that it communicates with each of the feed holes in turn as the shaft is rotated. The mechanism is, as usual, placed in the oil tank and submerged in oil; there are open spaces between the feed holes in the bed, so that the pump port communicates with the oil supply between feeding strokes. A rocking arm is pivoted at its center and has one end pivoted to the pump plunger and the other fitted with a roller which comes in contact with a series of sloping plates on the lower side of the tank cover as the turntable rotates, and so gives the pump plunger a rising and falling motion; the cam plates, as they might be called, give the up stroke, while the down stroke is effected by a spring against which the lever moves on the up stroke. The vertical shaft may be rotated by gears, pulley, or ratchet, as in oilers of other types.

As it is naturally important that the operator should always know just how much oil there is remaining in the lubricator tank, there is a glass gauge attached to the tank to show the level of the oil. This is usually placed in a recess so that it will be protected from accidental knocks. The filling hole is large enough to make filling the tank an easy matter, and it is closed by a screw cap or plug. A strainer is placed under the hole, as shown in Fig. 2; this drawing also shows the gauge glass recessed into one corner of the oil tank.

Sometimes the lubricator is fitted with a hand pump, which may be used to force oil to the bearings in an emergency, such as the disablement of the power pumps or the driving gear, or in case an extra quantity of oil is needed temporarily. Sometimes the hand pump is connected with a supply of special oil contained in a compartment in the main tank, this arrangement being useful if it is deemed advisable to use a different oil for some particular bearing.

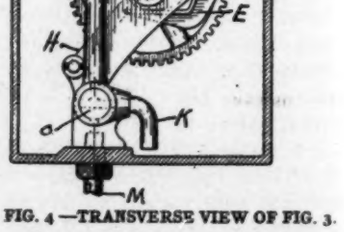


FIG. 4.—TRANSVERSE VIEW OF FIG. 3.

In addition to the mechanically operated oilers, there are oilers which depend upon air pressure or exhaust pressure for the requisite force. These pressure oilers are essentially oil tanks made air tight; air is pumped into them by a hand pump or part of the exhaust gas piped to them—the air system being more frequently used than the exhaust. From the tank the oil passes through the usual feed pipes and sight feeds to the bearings. Sometimes the tank is placed somewhere out of sight and the sight feeds on the dash.

CONCERNING RADIATORS AND THEIR FUNCTIONS

TRANSLATION FROM M. BAUDRY DE SAUNIER, IN *OMNIA*.

THE first water cooler seen on an automobile was employed by Girardot in 1897 on his Panhard racer in the Paris-Dieppe contest. The motor developed 4 horsepower. The water-cooling apparatus, constructed by Grouvelle & Arquembourg, weighed 28.6 pounds; it was accompanied by a tank weighing 61.7 pounds. The provision of water necessary was fifteen gallons. Progress in this branch of automobile construction has been rapid. Nine years later—in 1906—the Brasier automobiles running in the Circuit de la Sarthe contest had for a 100-horsepower motor a radiator weighing 30 pounds, and a reservoir of 41 pounds, while the necessary provision of water was barely four gallons. Fifteen gallons in 1897 for 4 horsepower; four gallons in 1906 for 100 horsepower.

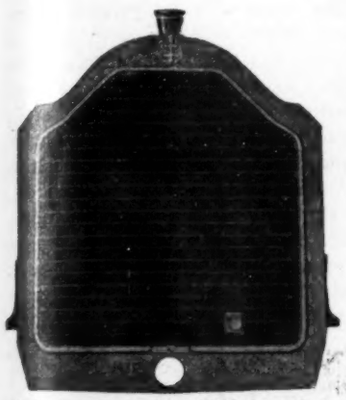


FIG. 1.—Type of radiator used by Duray in Vanderbilt race. The Darracq car had same make of radiator, but of a different shape.

Early coolers were formed of long fin-covered tubes bent up to form a series of complicated S, assembled haphazard by bars of wood and long bolts. The resistance of these tubes, which singularly were taken in very small section, was enormous. Their length was often over 80 feet, as in the Paris-Berlin Panhard racer, and to make the water circulate in these winding tubes the pump had to be particularly robust. Such a system often reduced 1 or 2 horsepower from the effective force of the motor. In order to diminish resistance the single tube was cut up into five or six pieces; thus were formed five or six ranges of tube, giving five or six times more circulation than the single tube (Fig. 2). These cut tubes had to be united to collectors above and below, the collectors united to the water tank and motor, making a complicated system both heavy and expensive.

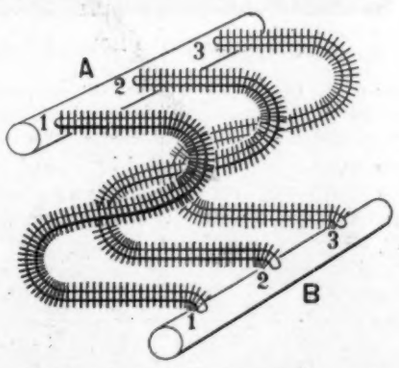


FIG. 2.—Section of serpentine water cooler, with collectors. A and B, collectors 1, 2, and 3, shows the S-shaped fin-covered radiating tubes.

Resistance was still too great, and this defect was accentuated by improvements in the motor allowing the driver to change engine speeds from 400 to 1,200 revolutions a minute within a few seconds. Pumps which gave a normal water supply at 800 revolutions gave practically nothing at 400.

The first tubular radiator, known as the honeycomb type, of German origin, solved the problem, theoretically at least, for it presented in one block a considerable radiating surface and a water tank which dispensed with long and fragile tubes. It was only a theoretical victory. The honeycomb radiator is often composed of five or six thousand parts which must be soldered together one by one conscientiously. Workmen's ideas of conscientiousness differ, and in a series of honeycomb radiators some are good and some eternally leak.

Now we come to a later type, the radiator used by Duray in the Ardennes Circuit and by Wagner in the recent Vanderbilt contest, and constructed by Grouvelle and Arquembourg, the feature of which is that they are formed of winged tubes. The dominant condition in the proper working of winged tube radiators is that the wing, or flange, be intimately united to the tube. This has become especially important now that the speed of cars has increased and the use of a ventilator has augmented the velocity of the draught passing over the radiating surfaces. In the type of radiator under consideration a cross is cut on the center of the flat piece of metal forming wing. The four points thus formed are bent into the shape of the tube on which the wing will be mounted. Slight difference in size between tube and wing which necessarily occur are of no importance, for the wing is wedged up, as well as the tube which receives it, by an elastic and discontinuous collar. In addition the wing is wedged on the tube by hydraulic pressure of several hundred kilograms per square centimeter. No soldering is necessary; the wing and tube become one as if they were made in a single piece. Flat wings are now almost universally used.

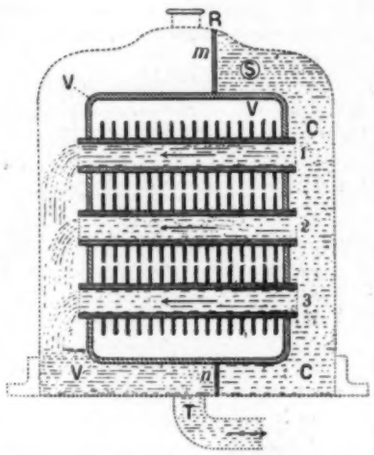


FIG. 3.—Sketch of a radiator as used on De Dietrich car in Vanderbilt race. R, filler. S, arrival of water. T, tube by which water passes to pump. C, C, reservoir. V, V, tubular wall. m, n, longitudinal division dividing radiator into two parts.

After minute experiments it has been found that 9 to 13 millimeter tubes give the best results. Smaller tubes divide the water better, but they are more delicate and their cost is high. The size and number of wings on a given length of tube is an important factor in the making of this type of radiator. They must be placed so as to allow a free passage of air, and just short enough to disperse all the heat supplied by the tube. To discover the most effective type of wing the following simple experiment was made: On a single radiator tube (Fig. 4) a constant pressure of air was forced, the pressure being controlled by a manometer. Steam was forced into the tube from its upper end, and condensed into a vessel at the lower end. The disposition of wings on this tube which gave the greatest amount of condensation was the one adopted for the radiator. Experiments have proved that if wings could be commercially manufactured by hyperbolic shape (Fig. 5) the best calorific results would be obtained. The nature of the metal, too, has its importance. Experience has given the following coefficients: With a commercial type of radiator, 13 millimeters section, 32 x 32 wings, on a car traveling at 19.8 miles an hour, sheet iron wings 100, aluminum wings 103, brass wings 107, silver wings 138. A few constructors employ copper wings; the greater number keep to sheet iron.

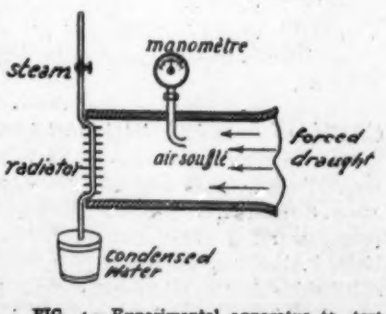


FIG 4.—Experimental apparatus to test the condensing power of different radiating wings.

Another important feature of this type of radiator is the casing

separating the tubes and wings one from the other, and serving to strengthen the whole structure. This thin division (a a, Fig. 6) is soldered to the wings adjoining it, thus preventing the bending of the wings, abolishing vibration in the tubes, and slightly increasing the radiating surface.

Finally the radiator is surrounded by a water tank with a pressure for positive circulation. It is useful that a motor should have a water tank, for if a pipe breaks, a leak is sprung, or the pump refuses to work, the presence of a mass of water charging on the motor will assure a normal working for some time. This mass of water, too, takes up the heat in a case of temporary overheating, and every automobilist knows how quickly overheating occurs with a retarded spark or defective ignition.

FIG. 5.—Wings, which give the best condensing results.

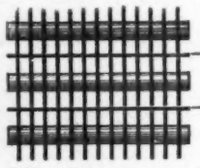


FIG. 6.—Metal divisions separate each row of tubes and give extra strength to whole structure.

The winged tubes, mounted up with their metal partitions as just described, are joined up at their extremities into tubular plates (V V, Fig. 3) to which they are brazed. This tubular plate, forming a complete frame around the vertical tubes, constituted one of the walls of the reservoir (C C, Fig. 3) in which the water tubes are embedded.

In this type of radiator a pump is usually employed when the tubes are horizontal. The water tank forming a frame around the tubes is closed above and below (Fig. 3) by two divisional walls m and n, so that the left part of the radiator contains water under pressure, since the pump is always forcing it through the opening S. This water is driven equally through all the tubes at the same time in to the other half of the radiator from which it passes by pipe T to the pump.

In reality the pump has only one object: to create a difference of pressure, or level, between two points in the general canalization, which includes the motor, the cooler and the piping. The debit of water depends on the value of this difference of pressure and of the diameter of piping that the water is obliged to pass through. If the pressure is great and the piping sections large, the flow of water will be great; and inversely.

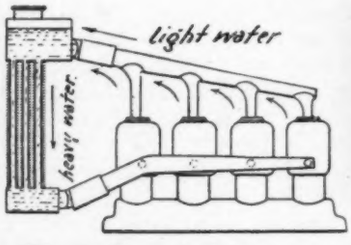


FIG. 8.—Water circulation as employed on Renault cars. There is no pump, circulation being obtained by thermo-syphon.

It is thus easy to perceive that water would circulate in a large piping—that is to say, one offering little resistance—with a very feeble pressure. This feeble pressure, sufficient to obtain a good circulation of water, is obtained by a kind of balancing of cold and hot water known as thermo-syphon.

If the cooling system (in this case the radiator) is placed higher than the heated surface (the motor), the cold water, being heavier than hot, tends to descend while the hot water tends to ascend. The cold water, in a sense, runs after the hot water and a current is established just as if a low pressure pump were used. A radiator without pump must always have vertical tubes (Fig. 8).

CARE OF ACETYLENE GAS LIGHTING APPARATUS

Many automobilists have trouble with their acetylene lamps merely because they will not give them the comparatively small amount of attention necessary to keep them clean, clear, and in proper working order, and the lamps and generator are often blamed when they are not at fault. Passages must be kept clear, old carbide dust should not be allowed to accumulate too much, and the glass and reflector should be well polished. Modern acetylene outfits are reliable and efficient if kept clean and in good order, but not otherwise, as a rule.

AN INGENIOUS HORSELESS BUGGYABOUT.

Many an owner of a light buggy has wondered why he couldn't put a motor in his vehicle and have a light automobile, and some have been so enthused with the idea that they have taken the trouble to try the experiment. While there have been failures in this direction, some successful machines have been produced, and in the latter class is the machine worked out by C. B. Hatfield, Jr., of Cortland, N. Y., whose machine worked so well that patents were taken out covering the more important features and preparations are being made to manufacture. Mr. Hatfield states that a high-grade buggy of the ordinary type may be metamorphosed into an automobile by removing the thill couplings from the front axle and attaching the motor and other mechanism, including the sprocket and chain steering gear, by which the fifth-wheel front axle is moved by a steering wheel in approved automobile style. By attaching the thill couplings and loosening the steering chains the horse can be hitched up in case of the temporary indisposition of the mechanism.

The motive power consists of a two-cylinder air-cooled motor rated at 8-10-horsepower, driving through a friction transmission. Ten speeds forward are provided, and three backward speeds, controlled by a single lever; at the neutral point in the center of the friction disk is a "floating rest" running on ball bearings,

THE HATFIELD HORSELESS BUGGYABOUT.

avoiding friction when the car is stationary with the engine running. There is no differential gearing, the rear wheels being each driven through a patented ratchet device. The speed-changing mechanism is controlled by a hand lever mounted on a tube concentric with the steering wheel column. The engine can be started from the seat—in fact, it cannot be started from outside at all—another patented feature. Ball or roller bearings are used throughout, even in the engine. Wheels are of the large buggy type with 1¼ inch solid rubber tires. The machine weighs 600 pounds, will carry two persons comfortably and is capable of a speed of from three to twenty-five miles an hour. There is no clutch or other disconnecting device between the engine and the rear wheels, the "floating rest" filling the place, and there is not a gear in the entire machine.

LOS ANGELES TO HAVE AN AUTO SHOW.

Los Angeles, Cal., Nov. 1.—This much has been decided upon by the dealers' association of this city: Los Angeles is to have an automobile show. The time and place for the holding of the exhibition has not yet been determined upon, but rests in the hands of the executive committee, A. J. Smith, I. Brown, Captain H. D. Ryus, and J. Goudy. This show, it is claimed, will be the first automobile show of any character that has been held west of Denver. There are 61 makes of cars represented at Los Angeles, and the show ought to be a representative one. It will probably be held some time in January.

LETTERS INTERESTING AND INSTRUCTIVE

Some Points in Cylinder Design.

Editor THE AUTOMOBILE:

[456.]—In designing a four-cylinder vertical motor in which the cylinders are to be cast in pairs with an integral water jacket on each pair, should the central wall between the two cylinders in each pair be a wall common to both cylinders, or should each cylinder within the water jacket be independent of the other, so that there would be a water space between them and hence all around each cylinder? I desire to make the head removable from the main portion of the cylinder casting. What kind of packing should be used between the two parts? The removable head will not be of the entire size of the cylinders, but will be simply a plate covering the reduced top of the cylinder casting.

Lynn, Mass. JAMES EASTON KING.

There is considerable diversity of opinion even among the best engineers as to the merits of the single versus the double wall between a pair of cylinders that are cast together. The single wall has the advantage of simplifying the casting and of reducing the length of the engine, but it possibly does not keep the cylinders as evenly cooled as in the case of the other construction. Against the latter point, however, is the undoubted fact that the heat conductivity of the metal can be relied upon to a considerable extent to convey the heat from the unjacketed section of wall to the parts that are jacketed. Some of the most eminent designers both in this country and abroad stick to the single wall, others use the double wall, so you are thoroughly safe in making your choice. As for the removable head, this is generally objected to as bad practice, especially if the two parts are simply flanged and bolted together with packing between. There is more or less tendency of the packing to blow out, though this can be prevented to a great extent by the use of asbestos containing a wire mesh, in connection with a raised edge on one of the flanges. Sheet copper gaskets are favored by some engineers, and serve very well if the joint is scraped to a close fit before placing the gasket. The removable head smaller than the cylinder diameter, and threaded and screwed in place, is good practice, and is a feature of some of the best engines made.

The Two-to-One Shaft.

Editor THE AUTOMOBILE:

[457.]—In a single-cylinder 1½-horsepower motorcycle engine of the make-and-break type, why are the cams that operate the spark contact and exhaust valve on a two-to-one gear? This seems as though the exhaust and spark contact works once only to every two revolutions of the motor. Is this correct? If not, kindly tell me the reason for the use of the two-to-one gear.

Bronx Borough, New York City. LOUIS F. KUNTZ.

All four-cycle motors require a two-to-one gear to operate the valves and ignition contacts. The reason of this is plain when the manner in which the engine functions is considered. Since four strokes are taken to complete the cycle—a charge being inspired on one stroke, compressed on the next, fired on the next, and exhausted on the next—and because there are two strokes to a single revolution, it is obvious that two complete revolutions are required to complete the cycle. This in turn requires that the exhaust valve be open once in two revolutions—at the end of the explosion stroke; that the inlet valve be open once in two revolutions—at the beginning of the suction stroke; and that the ignition occur once in two revolutions—late in the compression stroke. Clearly, to produce this series of effects cams rotating with the engine mainshaft cannot be used, because they would operate just twice as often as is required. The natural recourse is to a two-to-one shaft, caused to rotate at just half the speed of the engine mainshaft, so that cams mounted upon it will turn a quarter of a revolution to a single stroke of the engine, with the result that the four quarters of the cam profile can each be planned to take care of one of the four strokes involved in the completion of the set.

A Question of Compensation.

Editor THE AUTOMOBILE:

[458.]—We have in our care a four-cylinder 1906 standard car of 30-horsepower. With carbureter adjusted so that the engine functions regularly at low spark and throttle, upon advancing either or both the engine misses. However, the missing cannot be traced to any one cylinder. By opening needle valve and increasing gasoline supply the engine runs fine with throttle open, but misses with throttle shut and at low speeds. Excellent results are obtained on the road with the richer mixture, but there must be some good reason for this, and would thank you for an explanation.

Alliance, O. F. L. M.

The trouble as you state it seems to be a rather singular one, since it appears to be due to a failure of the carbureter to compensate for different speeds. The only thing we can suggest is that possibly something has gone wrong with the compensating element of the carbureter. Without knowing what particular type of carbureter you are using, it is impossible to be specific in directing a search for the difficulty. Of course, if it is a very old carbureter, it may be non-compensating, in which case the necessity for different adjustments for different speeds is only to be expected. But you say the car is a 1906 model, so it is hardly probable that it is fitted with an out-of-date carbureter. By all means the best thing for you to do, if other means fail, is to write directly to the carbureter people. Undoubtedly they will be able to give you the "good reason" you seek, with any directions that may be necessary for repair or readjustment.

A Slipping Cone Clutch.

Editor THE AUTOMOBILE:

[459.]—On my car I have a clutch of the leather-faced cone type, which is normally held in engagement by a coil spring and is released by the action of a pedal. The clutch has been slipping badly of late and I have tried the application of all of the substances of which I have heard to prevent this. Do you suppose the trouble is with the leather or with the spring? I think perhaps the latter is not sufficiently strong to properly wedge the cone into the flywheel. FRANK W. PRESTON.

Marietta, O.

From what you describe of your difficulty, it seems probable that the trouble is with the leather, and if you renew it you probably will find that all is well. Of course, it may be that there is oil on the friction surfaces, or that the spring is not strong enough, but you say you have investigated these possibilities in some degree. If a liberal application of Fuller's earth to the leather fail, it is certain that the trouble is not due to oil or undue smoothness. Perhaps the leather is so worn that it cannot make full contact with the surface in the flywheel, no matter how strong the spring is. Only a personal examination of each detail can bring about a definite conclusion.

Straightening a Bent Crankshaft.

Editor THE AUTOMOBILE:

[460.]—I have a four-cylinder standard make engine, and in putting it into the chassis the end of the crankshaft sticking through the flywheel has been bent out of straight. Can you suggest a way of straightening it? There is no driving stress on that part of the shaft, that being merely the bearing for the clutch.

Philadelphia, Pa. ODIN DORR.

To straighten the bent crankshaft, it probably will be best to place it in a vise, clamping it securely, after which it can be bent back by hammering. Do not strike the shaft directly with the hammer, but interpose a piece of hard brass, to prevent injury. To test the straightness, it will be necessary to take the shaft out of the vise and revolve it. Under this test, the end of the shaft will appear to wobble if it is still out of straight. When it rotates perfectly true, the job may be considered finished. Since there is no driving stress upon the part of the shaft that is bent, it may not be necessary to secure an exceedingly exact result.

Details and Respective Merits of Sliding Gears.

Editor THE AUTOMOBILE:

[461.]—Is there any difference in merit between that form of sliding gear transmission in which the main and countershafts are in the same vertical plane and that form in which they are in the same horizontal plane? I noticed that practically all of the American cars use the latter construction, while the former is found in several well-known European cars.

Burlington, Ia. H. P. TOMLINSON.

The diversity of practice which puzzles you is determined altogether by minor factors of the general design, and rarely has for its object any special advantage. With the mainshaft and layshaft in the same horizontal plane, both are more accessible upon removal of the gearcase cover than when one is above the other. In a few sliding gears, not designed to afford direct drive upon any of the speeds, the mainshaft is the higher, with the layshaft beneath it, for the purpose of lowering the point of attachment of the propeller shaft, in this way avoiding undue angularity of universal joints, or the alternative, tilting or lowering the motor.

Concerning the Variety of Brakes.

Editor THE AUTOMOBILE:

[462.]—Here is something that strikes me as peculiar. Why is it that in many cars in which the brakes on the rear wheels are of the internal expanding variety the brake on the transmission gear is of the external clamping type? It would seem to me that a designer would naturally use either the one type or the other in both instances. AUGUSTUS F. BENSON.

Great Barrington, Mass.

The chief merit of internal brakes, as applied within rear wheel hubs, is the ease of applying thorough protection from dust and wind. The constricting brake is equally good, and is very much more accessible, so it naturally is used at those points in the transmission where protection from dirt is not so essential as at the rear wheel. These two considerations reasonably enough induce many designers to use both types, distributed in the manner stated.

SMALL DANGER OF COMBUSTION IN GARAGES.

Editor THE AUTOMOBILE:

[463.]—In your reply to the inquiry of G. Delaplaine Hall as to the cause of spontaneous combustion of oil-soaked waste and rags, you state that the nature of the chemical action taking place is not fully understood. The subject of spontaneous combustion was investigated years ago by the experts of the New England cooperative insurance companies and it was proven that the action was purely oxidation, the heat due to the reaction being retained by the mass of refuse so that under favorable conditions flame temperatures were reached.

It was proven conclusively that mineral oils or oils containing over 50 per cent. mineral oil would not ignite spontaneously under any conditions, and that fish oils, formerly extensively used for lubrication in mills, were most readily oxidized and were likewise most dangerous and such oils were prohibited upon the insured premises.

As pure or nearly pure mineral oils are used almost exclusively for automobile lubrication, there is little danger of spontaneous combustion among oily waste about premises where automobiles are kept. Linseed oil used in painting is, however, extremely dangerous, owing to the rapidity with which it oxidizes when exposed to the air.

Plainfield, N. J. S. W. RUSHMORE.

THE PLACE BELONGED TO THE OTHER RAMBLER.

Editor THE AUTOMOBILE:

[464.]—We regret to note that in your issue of the 25th inst. you, in reporting the Chicago-Cedar Lake Economy Test, gave C. S. Neuman credit for covering the distance on three gallons of gasoline, while you rate T. B. Jeffery last with six gallons and one quart. We are aware that this was the report given by the committee at Cedar Lake, but the positions were really reversed. The error was the result of giving Messrs. Jeffery and Neuman the wrong numbers at the start.

The actual facts as based in the final report given by the committee was that Mr. Jeffery's car, Model 15, covered the distance on three gallons of gasoline. Mr. Neuman's car, a Model 14, started with one bad spark plug and made the entire distance on three cylinders, necessitating at many periods the use of the intermediate speed. We feel that it is also worthy of note that with all but one exception the cars finishing with higher merit marks than Mr. Jeffery's car are cars selling at a much higher price than is the Rambler.

Another point we believe worthy of note is that in the design of Rambler cars the primal requirement is great reserve power and with that object in view this particular model is equipped with a four-cylinder engine having a piston displacement of approximately 108 cubic inches to each cylinder. While this may not tend to extreme gasoline economy, we believe that the ample power thus provided is well worthy the slight additional amount of gasoline required, particularly when a car of this size is able to cover eighteen miles per gallon with four passengers, under the conditions existing during the recent consumption test.

While we understand that you are in no wise to blame for the error in misplacing the owners of these cars, we would be pleased to have you note the above correction.

THOMAS B. JEFFERY & CO.,
Per Frederic B. Hart, Manager Advertising.

Kenosha, Wis.

WHO WILL GIVE THE YOUNG MAN A CHANCE?

Editor THE AUTOMOBILE:

[465.]—Permit me, a reader of your valuable paper, to ask how a young man who desires to enter the automobile business can obtain a position.

I am not a mechanic; in fact, have always been employed in commercial lines, but for the past five years have tried to obtain a position, in any capacity, in the automobile business, but up to date have signally failed. I have placed applications with various manufacturing concerns, have tried different garages; but the answer was always the same—no room for inexperienced men. After many failures, I finally decided to join some school, and after investigating the different ones, joined the Y. M. C. A. school in this city.

I studied hard and faithfully and succeeded in passing the different examinations, obtaining 88½ per cent., which, if you are familiar with this school, you will realize is a very good mark. I also passed my driving examination and was turned out as a full-fledged chauffeur. I secured my license and again tried to secure a position, but again the same answer—only want an experienced man; my school education was laughed at, and although I honestly believe that I know more about motors and cars than many so-called expert drivers, I am still looking for my first position. I have devoted much time to study, both before and after joining the school, from technical books and your magazine, and think myself qualified to care for a car properly and render efficient service as a driver of one.

I am not writing this in the sense of a complaint or knock at existing conditions, but I want some advice from experienced and practical men, and not being blest with such friends, I write to you who as experts of recognized ability are qualified to assist me. I am willing to accept any position paying a decent salary, in garage, salesroom, or as chauffeur.

WILLIAM J. MURPHY.

2071 Seventh avenue, New York City.

HIGHLY CROWNED ROADS DO NOT LAST.

Editor THE AUTOMOBILE:

[466.]—In your editorial articles on good roads, I wish you would draw attention to the fact that a highly crowned road can never be a good road, and cannot last any length of time with any considerable amount of traffic passing over it. It is evident that the vehicles will always keep to the center of the road, in order to travel in a level position. This brings the wheels of all the vehicles over the same part of the road, and as rubber tired cars pick up small particles of dust and stones and throw them in the air they very rapidly cause roads to rut at the point where the wheels pass. This is true of roads 20, 30, or 40 feet wide as much as it is of narrow country lanes, provided they are crowned high in the center, and the public gets no benefit whatever from the width of the road, except the fact that vehicles can pass one another more easily.

In England, where the greatest attention has been paid to roads, and where the climate is wet a large portion of the year, all the main routes are flat, with a crown in the center on a 30-foot road not exceeding 1 inch or 2 inches for the total distance. Thus vehicles of all kinds travel over the entire surface of the road, and for that reason the roads last much longer and are not rutted as much by the same amount of travel. The drainage is duly looked after by proper gutters at the side.

If our road makers here would follow this practice, we would soon have much better highways, and the public would get much more for their money.

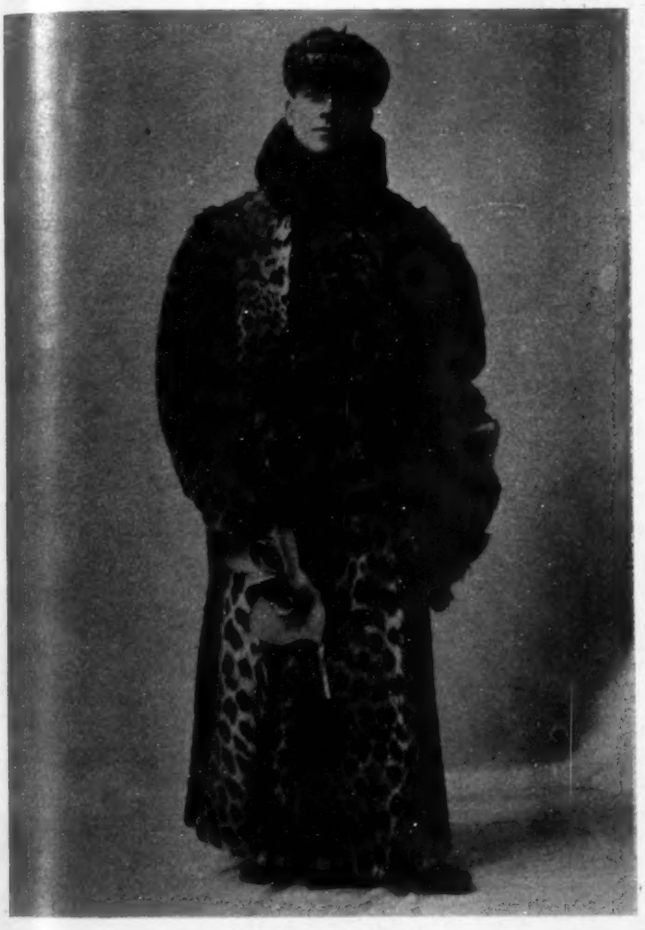
EDWARD R. HEWITT,
New York City. President Hewitt Motor Company.

WHAT THE MAN NOW WEARS FOR DRIVING

BY LAURA B. SEIPLE

DESIGNERS and manufacturers of automobile apparel are producing wonderful results in clothes for comfort. To be sure there are all kinds of togs designed to attract the eye, but novelties in all classes of wearing apparel are bound to crop up from time to time, only to be shunned by the man of discriminating tastes.

It is in the realm of leather and fur that one finds the practical auto styles. Long runs in the automobile call for windproof coats and seasonable headgear. Leather garments lined with fur



Courtesy of Scandinavian Fur and Leather Co

LEOPARD SKIN COAT. CAP OF TIGER SKIN.

are found in a large range of sensible styles, but for actual warmth there is nothing that can compete with the long fur coat. It may seem strange, but nevertheless it is true that fur-lined garments are not so warm as fur lined with cloth.

Leather clothes for both owner and chauffeur are similar in style. When the owner himself drives his car, he may wear an entire suit of leather in black or brown, a trim little cap, with pointed visor, or a small leather hat with suéde brim, which can be bent to suit the individual taste. The noticeable difference between owners' and chauffeurs' leather suits lies in the cut of the coat. Owners' coats are fashioned after the Norfolk style, while operators' are usually made on lines of a plain sack coat. Knickerbockers are correct for both owner and chauffeur, although long leather trousers are being shown by many dealers in smart automobile apparel.

Top coats of leather are recommended for short jaunts in the motor and for mild weather. In these brown is the preferred shade, and the most approved cut follows closely the lines of the double-breasted paddock coat, save for the generous proportions shown in the skirts and the extreme widths of the fronts designed to protect the chest from shoulder to shoulder. Lapped seams and large patch pockets give a swagger appearance to these coats. A wide storm collar which may be worn turned up over the head and secured by a leather frog or turned down to fit the neck snugly has a stitched edge. Large bone buttons, matching in color the material of the coat, close the fronts and pocket flaps.

Wide wale corduroy is another fabric more or less in evidence just now. The smartest style in the great coat is double-breasted with belt at the back, large pearl buttons, a snap-and-ball clasp at the edge of the skirts and two deep pockets protected by buttoned-down flaps. The average length in which this coat is made is fifty-four inches.

Leather trousers lined with Australian opossum have boots attached large enough to draw on over the regular clothes and shoes. In combination with these trousers is shown a kangaroo chest protector designed to be worn under the overcoat. With such details the fur coat may be dispensed with, a heavy cloth or leather one proving sufficiently warm.

Various furs of inexpensive character are employed in the making of garments for the chauffeur. Perhaps the most popular fur is Manchurian dog, which comes both in black and gray, and is on the market at prices that are surprisingly low. An inner lining of quilted sateen or duck is so perfectly tailored that the garment may be worn reversed—cloth outside and fur inside—if desired by the user.

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COAT OF MANCHURIAN DOG SKIN.

A long fur coat that will give a life-long service is made of selected raccoon skins and lined with fine cloth. The most practical model is double-breasted and 54 inches long. The pockets are finished with tails of the animal and the storm collar is unusually wide and made of backs only.

Among the novelties shown at the establishment of an arbiter of automobile fashions was a very long coat of leopard skins finished with a beaver collar. The model was double-breasted and closed with large bone buttons. A tiger skin cap with leather visor accompanied this remarkable coat, whose length was less than three inches from the ground.

One of the handsomest fur coats imaginable is made of selected beaver skins. The high storm collar and deep, turned-back cuffs insure perfect comfort to the owner. Huge pockets on the sides are lined with chamois skin. Amber colored buttons close the fronts. A beaver cap with ear muffs attached and gauntlet gloves complete the outfit of the gentleman's winter motoring toggery.

LEATHER TROUSERS AND KANGAROO PROTECTOR.

Very stunning is a long coat of wildcat, having the backs of the animals forming the front panel of the overlapping front. Instead of buttons, the opening is closed with large wooden olives and silk cord loops. A cap with patent leather visor and adjustable ear protectors accompanies this exceptional garment.

Fur caps of many models are being used by automobile enthusiasts. Muskrat is perhaps the most popular of the inexpensive furs employed in the making of caps. Raccoon, leopard, cat, cony, krimmer, Persian lamb and sealskin are found in combination with French kid or suéde or made up in self, handsomely lined and finished.

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COAT AND CAP OF RACCOON FUR.

STORM COAT OF WILD CAT.

Fur boots and leggings in natural seal, opossum, Manchurian dog skin and leather lined with sheep's wool are found in a large range of practical shapes. Gloves for coats with wind cuffs and gauntlets for coats having plain sleeves have leather palms and fur backs. In these seal, squirrel, raccoon and muskrat are the furs most in evidence. The leather gauntlet with mailed palm is a wonderfully clever device for the driver. The studded palm and fingers aid tremendously in gaining a firm purchase of the steering wheel; besides, a pair of mailed gloves will outwear half a dozen pairs of the ordinary.

Goggles in endless styles include plain and hinged lenses, set in wire gauze with chamois shields, kid skin lined with cony, or silk. Cups with wide vision mounted on a silk mask and faced with chenille is the style recommended for all-around use. While goggles of this type admit of unobstructed sight, they serve as a protection to the face at the same time.

That automobile toggery has reached a degree of perfection that it did not hold six months ago there is no denying. Styles have been simplified, materials made lighter in weight without reducing their warmth, and fewer garments are required for the entire comfort of the enthusiast. Those of most favored styles are so complete in themselves that many of the smaller details have been voted in the way, and dispensed with. The substantial severeness of the coat, cap and such accessories deemed necessary marks the general tone of exclusive styles in automobile apparel for men.

Among the practical automobile coats in cloth there is a classy model in dust-colored cravenette lined with silk rubber and finished so that it can be worn either side out. The style is fashioned on long straight lines, double breasted and with high storm collar and wind cuffs that close snugly about the wrists, where they are secured with buttoned tabs. Inverted plaits at the sides afford ample looseness. A belt across the back adjusts the fulness of the skirts and big patch pockets protected with buttoned flaps complete the garment.

Another sensible model shown both in cloth and leather is also double breasted and closes with five big bone buttons. Deep side plaits and a belt which fastens on the hips holds the coat in to the form. Scotch and Irish friezes and heavy tweeds are the preferred materials employed in coats of this class. Trousers to match are growing in favor. They are made with cuffs at the bottom which button tightly about the ankles.

COAT OF SELECTED BEAVER.

Fur waistcoats have not received the hearty welcome in America they have in Europe These vests are admirably adapted for all kinds of bad weather. Only certain kinds of short-haired furs are available, which fact narrows the choice down to seal, Persian lamb, beaver and Russian pony. Musk-rat and mink are used to a small extent, but with clumsy results.

There are other garments that might be included in the completely equipped automobile outfit, such as sweaters, leather leggings and a rubber lap-robe made to fit the knees and covering the feet in simulated boot effect. The robe is so fashioned that it gives perfect freedom of the feet, providing ample room for the steering wheel and completely protecting the body by surplice corners that cross at the back and which are held taut by means of straps and buckles.

WINTER FUNCTIONS OF THE AUTO CLUBS

AUTOMOBILE CLUB OF SPRINGFIELD BANQUET.

SPRINGFIELD, MASS., NOV.1.—The annual banquet of the Automobile Club of Springfield, held to-night at the Hotel Worthy, was the most successful in its history. Charles J. Glidden, the round-the-world tourist, was the guest of honor, and he received a reception that must have been pleasing in the extreme. Mr. Glidden on that day had resumed his accumulation of world mileage, having started from Boston in the morning, with Mexico as his ultimate destination, from a seaport of which country he will take ship for Egypt.

President V. J. Irwin, recently selected to succeed Stanford L. Haynes, who declined a re-election, introduced E. H. Lathrop as the toastmaster of the evening. There was considerable of an A. A. A. flavor to the function, three of its board of directors being present: Lewis R. Speare, president of the Bay State Automobile Association; John P. Coghlin, president of the Worcester Automobile Club, and A. G. Batchelder, of the New York Motor Club. The benefits and advisability of a national organization with strong state bodies was dwelt upon, and the results in various states were convincingly demonstrated.

George M. Stebbins, the marshal of Springfield; Arthur A. Adams, Superintendent of streets, and Judge Kellog, a magistrate of Westfield, whose rulings are accentuated with fairness, were interesting talkers who made apparent the growing and widespread opinion that the automobile and its driver have a place on the highways and are entitled to the same consideration as that accorded to other users of the road. Other speakers included Col. C. L. Young, who supplied the real humor of the evening; Editor Langtry, of the Springfield *Union*, who contributed the sentimental aspect; Dr. George L. Fenn, who referred to the legal phase of automobiling; and Dr. W. R. Weiser, who seemed to think that some of the "auto coppers" were oppressively energetic in their duties.

Mrs. C. J. Glidden was entertained by a theater party at the Court Square Theater, the committee for entertainment consisting of Mrs. V. J. Irwin, Mrs. E. H. Cutler, Mrs. A. E. Smith, Miss Alice Wright, and Mrs. T. R. Culver.

Syracuse Club Shows County Supervisors the Roads.

SYRACUSE, N. Y., Nov. 5.—It is sincerely hoped by the members of the Automobile Club of Syracuse that the recent outing given the Onondaga County Board of Supervisors will be productive of good results. Impressed with the evident necessity of county road improvements hereabouts, a number of the club members donated their automobiles and the Supervisors were taken for a ride over some of the roads. The start was made in West Genesee street, the cars being driven west over the smooth Genesee turnpike, which has been improved by a big manufacturing concern whose plant is located on it. The road from the turnpike to Onondaga valley gave the Supervisors a severe shaking up, which lasted until they struck the Dorwin Springs road, which is the first highway built in the county according to the State Highway Commissioners' specifications. It is said that the Supervisors have been converted to the belief that there is room for improvement in many of the county roads.

Vermont Automobile Club Holds Its Annual Election.

MONTPELIER, VT., Nov. 5.—At the annual meeting of the Vermont Automobile Club, held here recently at the Pavilion Hotel, officers for the ensuing year were elected as follows: President, C. A. Harris, of Brattleboro; vice-presidents, E. A. Brodie, of Burlington, and F. D. Ladd, of Barre; secretary and treasurer, George E. White, of Montpelier. The club has a present membership of 157.

UNSETTLED CONDITIONS IN LONG ISLAND CLUB.

BROOKLYN, N. Y., Nov. 5.—The annual meeting of the Long Island Automobile Club will take place Wednesday, December 5. At the recent monthly meeting considerable heated discussion preceded the selection of the nominating committee. Dr. F. M. Sharpe, L. T. Weiss, who figured on both tickets, and C. H. Pulis, E. Melvin, and J. H. Emanuel, supposed to be favorable to the present administration of the club, were the five selected to present nominations for the December meeting. The division was 36 to 27.

It will be remembered that some time ago the Long Island club voted to resign from the New York State Automobile Association of the A. A. A., it being contended that the club could accomplish as good results for members even if it were not identified with the state organization. It is known that a personal difference of opinion between well known officers somewhat influenced that action. Leading officers of the New York State association are now somewhat inclined to allow the Long Island club to pursue its own way, single handed, believing that in course of time a majority of its members will recognize the fact that a strong state body will accomplish more than could be hoped for with clubs working individually and not in unison.

Besides the officers to be elected at the December session there will be three vacancies on the board of directors, the terms of A. R. Pardington, L. R. Adams, and Z. N. Allen expiring. The remaining members of the board are J. H. Emanuel, Frank G. Webb, and C. R. Parker. It is not improbable that to the new board of directors will be referred the reconsideration of the withdrawal from the state body of the A. A. A.

Charles Jerome Edwards, A. R. Pardington, and others yet to be named will arrange for the annual dinner which follows the annual meeting.

Rhode Island A. C. Plans Series of Entertainments.

PROVIDENCE, R. I., Nov. 5.—The first of a series of smokers which it is proposed to hold at intervals during the winter season was held last Saturday evening at the Garnet street clubhouse, and was very largely attended. There will be another smoker, the second in the series, on the evening of November 24. On this occasion Peter McQueen, a raconteur, author and lecturer, will give an illustrated talk on the conditions in Panama, and the work on the canal. The third smoker will be held about the middle of December, on a date to be decided later. On January 2 comes the annual banquet of the club, and according to the plans of the entertainment committee, of which Dr. William P. Church is chairman, there will be a smoker early in February, one about the first of March, and another in the latter part of that month.

The recent large increase in membership has led to the issuing of a notice by Secretary Sawin, setting forth the advantages which the club offers its members. Thirty new names were added to the roll during October.

Mushroom Feast for New Jersey Automobile and Motor Club.

NEWARK, N. J., Nov. 5.—Chairman W. I. Fisk, of the house committee, has planned a novel feast as a fitting final for the club run on November 11. Mushrooms, creamy and delicious, will be the basis of the dinner which will be served to the tourists at the termination of the run, the Pedeflous mushroom farm, near Plainfield. On the bill of fare there will be stuffed mushrooms, fillet of beef with mushroom sauce and broiled chicken. The other dainties have not been announced, but the menu will be a long and good one. Edward Seitz has been elected a member of the house committee to take the place of Jacob Dawson, re-

signed. Twenty-five new members were added to the rolls at the last meeting of the board of directors. One thing that is increasing the membership is the strong position the club has taken in protecting its members when illegally arrested for alleged infringement of the Frelinghuysen law.

New Home of New York Motor Club Formally Opened.

NEW YORK, Nov. 5.—A housewarming signalized the opening of the new quarters of the New York Motor Club at Reisenweber's, Seventh avenue and Fifty-eighth street, November 1. President J. P. Moore, in a fitting address, outlined the future policy of the organization, one of the features of which will be a number of lectures and talks on practical motor subjects during the coming winter season. The club is now in its third year, and its rapidly increasing membership made it necessary to secure enlarged quarters. W. H. Finn, the new chairman of the entertainment committee, provided an interesting musical and vaudeville program for the members and guests, and several impromptu speeches were made.

Automobile Club Organized at Asheville, N. C.

ASHEVILLE, N. C., Nov. 3.—At a meeting of automobile owners held last week at the office of Dr. W. L. Dunn, the organization of the Asheville Motor Club was permanently effected with ten charter members. The following board of officers was chosen: President, Dr. T. P. Cheesborough; vice-president, Julian A. Woodcock; secretary and treasurer, V. P. Bostick. Among the charter members are the above-named officers and Dr. W. L. Dunn, J. D. Rumbough, Dr. Jas. E. Sawyer, E. C. Sawyer, F. S. Coxe, Frederick Cone and Tench Coxe. It is believed that the nucleus of a very strong organization has been effected.

Colorado Automobile Club to Hold an Endurance Run.

DENVER, COL., Nov. 1.—An endurance run is on the tapis for the Colorado Automobile Club the latter part of November, the date for which has not been definitely decided on this writing. The destination will be Colorado Springs, and the contestants will be divided into three classes, according to the horsepower of their cars. The run will start from Denver in the morning, and the only stop will be at Colorado Springs, where a midday lunch will be served. The return trip will be made in the afternoon. Suitable prizes will be awarded.

CLUB DOINGS IN GENERAL.

SAN JOSE, CAL.—Although but two months old, the Santa Clara County Automobile Club has a membership of over 100. Signs for the marking of the danger points on the local roads have been ordered and will soon be put in place, as will other signs, with arrows indicating directions.

KANSAS CITY, MO.—At the last meeting of the Kansas City Automobile Club a resolution was adopted asking the members to support without regard to political affiliations such candidates for judges of the county court as have shown by their past records that they are in favor of good roads, and their preservation as is provided for by state enactment.

MILWAUKEE, WIS.—At the recent annual election of the Milwaukee Automobile Club the following directors were elected: For three years, C. S. Drake, Dr. Ralph Elmergreen, and C. F. Niedecken; for two years, Rev. J. F. Szukalski; for one year, Christopher Schlotka. The directors have elected the following executive officers: President, Dr. Louis Fuldner; secretary, J. T. Drought; treasurer, C. S. Drake.

RUTHERFORD, N. J.—Automobilists of this vicinity have a very active organization in the Rutherford Motor Club. The recent illuminated parade held by the organization was a success in every way and gave evidence of the enthusiasm which the organization possesses. The officers of the club are: President, William Barkley; secretary and treasurer, Stewart Donaldson. The club has a membership of sixty.

HOUSTON, TEX.—At the last meeting of the Houston Automobile Club a committee was appointed to petition the County Commissioners to have the road between Deepwater and Seabrook macadamized. The sum of $75 was voted the committee to arrange an oyster roast for the citizens at a public gathering and the Good Roads Association of Harris County was invited to affiliate with the club in endeavoring to secure the much-needed improvement.

LOUISVILLE, KY.—George H. Wilson, president of the Louisville Automobile Club, has received a letter from one of the little girls of the Episcopal Orphanage Asylum, whose inmates were given an outing recently by the club. It ran as follows: "We wish to thank the Automobile Club, through you, for the very, very pleasant ride you gave us. We shall never forget our first ride in an automobile. It certainly was lovely in you to think of all the orphan children. Mary Traynner, One of the Girls."

THE AUTOMOBILE CALENDAR.

AMERICAN.

Shows.

Dec. 1-8.....—Seventh Annual Automobile Show of the Automobile Club of America, Grand Central Palace, New York City, under the patronage of the American Motor Car Manufacturers' Association.

Jan. 12-19.....—Annual Automobile Show of the Association of Licensed Automobile Manufacturers, Madison Square Garden, New York City.

Feb. 2-9.....—Chicago Automobile Show, Coliseum and First Regiment Armory. S. A. Miles, manager, 7 E. 42d Street, New York City.

Feb. 11-16.....—Detroit, Mich., Sixth Annual Automobile Show. Light Guard Armory, Tri-State Automobile and Sporting Goods Association. E. E. McMasters, manager.

Feb. 18-23.....—Fifth Annual Automobile Show, Buffalo, Convention Hall. D. H. Lewis, manager, Teck Building, Buffalo.

March 9-16.....—Boston Automobile Show, Mechanics Hall and Horticultural Hall, Boston Automobile Dealers' Association. Chester I. Campbell, manager, 5 Park Square, Boston.

April 6-13.....—Montreal, Canada, Second International Automobile and Sportsman's Exhibition. R. M. Jaffray, manager, 309 W. Notre Dame Street.

Tours.

Nov. 14-15-16...—Annual Economy Test of the New York Motor Club. Entries can be made at the club's new headquarters, Seventh Avenue and Fifty-eighth Street, New York City.

Race Meets and Hill Climbs.

Nov. 29.....—Riverside, Cal., Thanksgiving Day Hill Climb. Box Springs Grade Hills.

Jan. 22-26.....—Ormond-Daytona (Florida) International Race Meet, Florida East Coast Automobile Association.

FOREIGN.

Shows.

Nov. 1-16.....—Berlin (Germany) Automobile Exhibition.

Nov. 15-24.....—London Olympia Motor Show.

Nov. 23-Dec. 1.—London Stanley Show, Agricultural Hall.

Dec. 7-23.....—Paris, Ninth Annual Salon d'Automobiles, Grand Palais.

Dec. 15.....—Calcutta, India, Exhibition of Automobiles, etc. Automobile Association of Bengal.

Race Meets, Hill-Climbs, etc.

Nov. 5-12.....—French Small Car Trials, "L'Auto" Cup.

Nov. 12-17.....—Australian Reliability Trials.

Dec. 1.....—La Coup de Salon Motor Boat Race.

THE TRAVELS OF THE "BLUE BOOK" CAR

By ROBERT BRUCE.

AUTOMOBILE touring has enjoyed a popularity in 1906 far beyond comparison with any previous year. This growth in touring interest has not been confined to any favorite section or sections, but it has been exemplified generally throughout the country. Well-known thoroughfares have been traveled more than ever before, and new routes sought out in unusual numbers.

Among the various noteworthy performances of touring automobiles in 1906, it is doubtful if any equal—for persistent following of the roads and the wide extent of territory covered—the program of THE AUTOMOBILE Official A. A. A. Blue Book Car. That program is now being brought to an end because further extensive road travel this year is rendered impracticable by the near approach of winter. A brief sketch of what has been accomplished by this car within the past four months is given herewith as a matter of general interest to the automobile touring public, and to the public at large.

The publication, in May, 1906, of THE AUTOMOBILE Official Blue Book, by The Class Journal Company, under the exclusive official indorsement of the American Automobile Association, gave the touring public the first comprehensive road guide issued for the United States and Canada. Such a work was badly needed, and the unprecedented call for it taxed the facilities of the publishers, printers and binders for a number of weeks. Later on the supply was brought up to the demand, but the call has continued phenomenally strong, even up to this writing.

Before the end of June it was decided to place a car on the road in the exclusive service of the Blue Book and its work. By this means several thousands of miles could be covered as a basis for personally revising a great many important routes for the 1907 edition. Furthermore, the extension of the routes and maps into the great Middle West for next year made it necessary to personally cover other thousands of miles of road, descriptions of which have never been available in any form.

Starting early in July, the Blue Book car has been on the road practically every day up to this writing. It has covered the principal routes in New Jersey and made the complete circuit of Long Island. Most of August was spent in New England, working from New York along the Shore Line to New Haven, New London, Providence and Boston, thence up the Massachusetts north coast to Newburyport, Mass., and along the New Hampshire coast to Portsmouth. From this point it turned into the Granite state, reaching the White Mountains by the "central route," past Lake Winnipesaukee.

While in the White Mountains a complete circuit was made of the Presidential Range, after which a return trip was begun from Bretton Woods and Bethlehem along the Ammonoosuc to the Connecticut river. Following the Connecticut river line through all its windings between the states of New Hampshire and Vermont, the compiler of the Blue Book was enabled to secure absolute definite running directions for the entire trip to Springfield, Mass., and Hartford, Conn. The importance of this will scarcely be overestimated by autoists who have attempted to make this run in past years, only to be confused by the multiplicity and conflicting nature of the various running directions. It is not too much to say that no other route in the United States needed actual personal observation and revision as much as this line; probably none other was ever the subject of so much difference of conflicting opinions.

It was on this trip down the Connecticut River Valley that the accompanying photograph was taken. At first glance it might seem as if this cornfield were in Iowa or Nebraska rather than in New England. As a matter of fact, it was passed on the way down the Vermont side in the vicinity of Bellows Falls. The stalk held up by the side of the car measured seventeen feet high—surely a testimony to the fertile nature of the narrow strip along the Connecticut River Valley in all its long, winding course through New England.

THE KIND OF CORN THE CONNECTICUT VALLEY PRODUCES.

At the end of this important run the Blue Book car started across western Massachusetts to Albany and Troy, from whence it was sent north through Saratoga to Glens Falls, returning to the Mohawk Valley at Schenectady. The run was made entirely through central and western New York, plus detours as far away from the main line as Watertown and Oswego on the north and Richfield Springs and Cooperstown on the south. Resuming the main line through central and western New York to Buffalo, the extensive Western trip of this car was planned and carried through via Erie to Cleveland, Columbus, Dayton and Cincinnati, O., plus important detours like that from Cleveland to Akron and Canton, O.

From Cincinnati the run was made to Lexington, Frankfort, Louisville, Ky., and through Indianapolis to Chicago, then east to Detroit, Toledo, and Cleveland. At this writing the Blue Book car is on its way east from Cleveland. It is probable that the Blue Book car has covered since July 1 in the neighborhood of 8,000 miles of American roads, east and west. For every one of these miles the Blue Book has either a revision, from personal observation, of the routes and maps as they appear in the 1906 edition, or else entirely new information, gleaned entirely from personal observation. The latter is especially true, of course, of the territory west of Cleveland and Detroit. The result of this extensive campaign on the part of the Class Journal Company will be conspicuous in the three separate volumes of THE AUTOMOBILE Official A. A. A. Blue Books for 1907. It is expected to constantly extend this work in keeping with the requirements of touring autoists.

AN AUTO TOUR DECIDEDLY UNIQUE.

DETROIT, MICH., Nov. 5.—Twenty-one children, former inmates of the Good Will Farm, at Houghton, Mich., but who were forced out through a rule of that institution prohibiting a child being kept more than six months, will shortly leave for a journey across the country in an automobile built expressly for them, the object of the trip being by the time Seattle, Wash., has been reached to accumulate sufficient funds to found an orphanage.

The tour is planned by H. M. Draper, former superintendent of the Good Will farm. George F. Strong, at one time a contractor in Detroit, but more recently of Hancock, Mich., is building the car, construction work being carried on here. It is in reality a sleeping coach mounted on a motor truck. The chassis is being built by the Rapid Motor Vehicle Company, of Pontiac, Mich. The machine will have 24 horsepower, with an 18-foot wheelbase and 21-foot frame, and will be capable of making 16 miles an hour.

No less novel than the car itself will be its occupants. There are twelve girls and nine boys, ranging from six to fifteen years in age and representing eight nations. Mr. Draper, who will be accompanied by three other adults, has already organized the youngsters into a brass band and juvenile dramatic company. Entertainments will be given along the line, the journey being made by easy stages, and the proceeds, aside from the cost of the trip, will be applied toward founding an orphanage.

MARYLAND CHAUFFEURS ORGANIZE A CLUB.

BALTIMORE, MD., Nov. 5.—At a recent gathering of the chauffeurs of this state, held in this city, the Chauffeurs' Club of Maryland was formed. The members of the newly-formed club stoutly deny the charges of the dealers and owners that it is the intention of the organization to demand increased wages and shorter hours as soon as they are strong enough as a body to take such action. They have banded together, they state, purely for social purposes, and have secured spacious quarters for their clubrooms on the second floor of the garage of the Automobile and Outing Company.

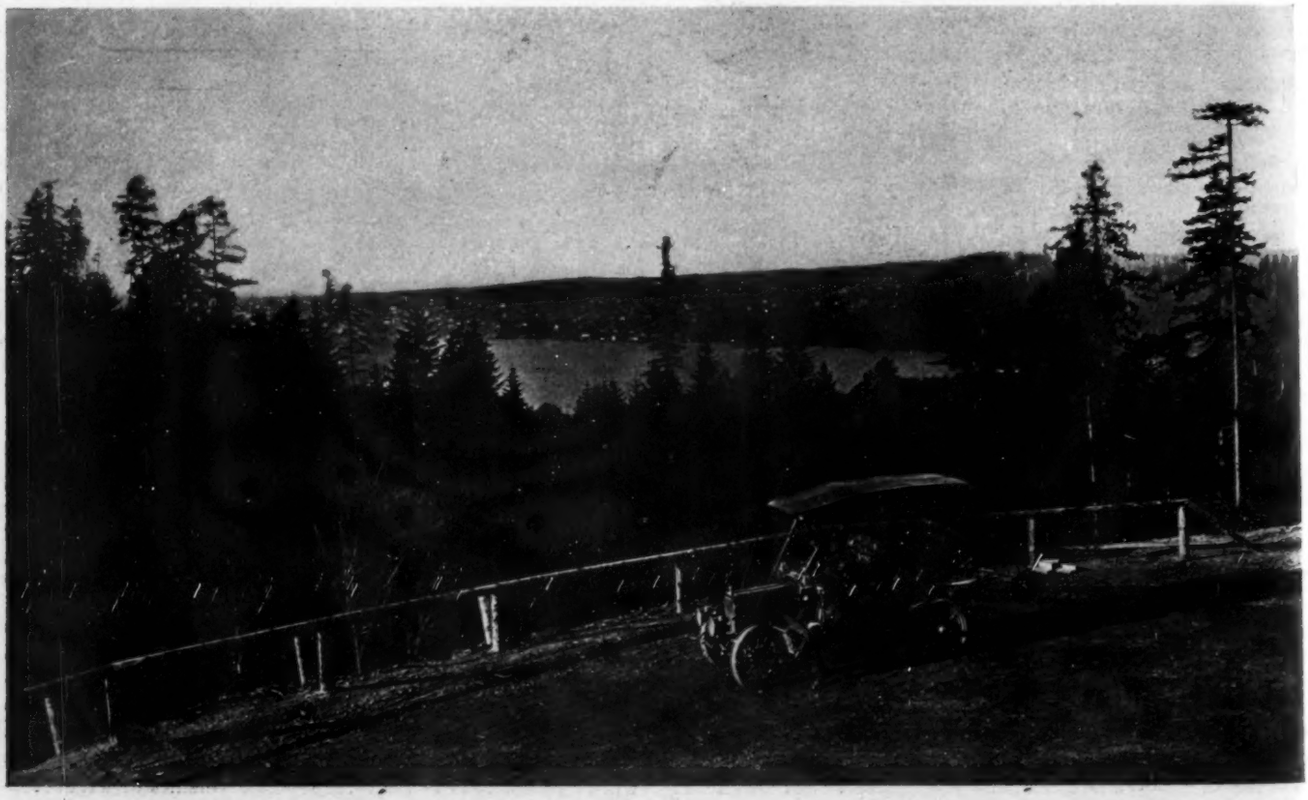
SEATTLE'S PICTURESQUE BOULEVARD.

SEATTLE, WASH., Oct. 29.—One of the most delightful and at the same time most remarkable boulevards in the West has just been completed, and will in a large measure add to the automobiling pleasures of this city. This is Interlachen boulevard, which connects with the Washington boulevard, the latter starting at Madison street. Interlachen leads to a point that overlooks Lake Union, and in view of Fremont across the lake. From here the road commences to wind down for a distance of nearly two miles. There are places where as many as three stretches of road at various heights can be seen below. The contour of the country was so rugged that grading of a difficult nature had to be done, but even canyon-like cuts have been turned to account by the designer. There are several so-called "hair-pin" turns.

The Interlachen driveway and Washington Park boulevard, are three miles long, and it is in the plan that this is simply a beginning of what will prove a great inter-city drive. The system was planned by Olmstead the landscape designer. His assistant J. F. Dawson, of Brookline, Mass., was here two years ago, when the details were worked out. At that time the park board purchased the land from the private owners. Most of the work of construction was done this year. Of the three miles more than 10,000 feet has been macadamized, while the remainder is gravel. The driveway is from twenty to twenty-four feet wide.

NEW JERSEY YOUNGSTERS TO HAVE CUP RACE.

BERNARDSVILLE, N. J., Nov. 5.—A cup race for pushmobiles is to be held here November 17, Herbert Mitchell being the donor of the cup, for which he also will contest. Ten cars will participate, starting at 25-second intervals, over a course a half-mile around, which will have to be covered ten times, giving a total distance of five miles. The race will start at 12 o'clock noon. Since some of the course is located on sidewalks, and has several sharp turns, the entrants have been very busy becoming acquainted with the circuit.



ON THE NEW BOULEVARD, OVERLOOKING LAKE UNION, NEAR SEATTLE, WASH., AT THE START OF THE DESCENT

THE NEW HARTFORD NON-SKID TIRE.

One of the problems that has for a long time defied satisfactory solution is how to avoid skidding on slippery road surfaces without sacrificing resiliency and durability in the tire. Like other automobile problems, it is bound to be solved some day, and the Hartford Rubber Works Company, of Hartford, Conn., believes that it has done a great deal in this direction in a new non-skid tire that has just been placed on the market, though experimental work and tests have been in progress for some time. The accompanying illustrations show the simplicity of the idea so clearly that little need be said regarding the construction of the tread. There are four endless coils of steel wire partly embedded in the rubber of the flat tread and vulcanized in place; otherwise the tires are of the ordinary flat tread type. It is not expected that the wire loops will not wear, but the ends that are left when the bight of the loop wears away will serve the purpose as well as the complete loop. In fact, tests have shown that the tire has even a better grip when the loops have worn away, leaving only projecting ends.

CROSS SECTION HARTFORD NON-SKID.

President Thomas Midgley is the inventor of the tread, and he has used it on his own car for some 2,400 miles of road work. Even after this length of service all the loops were not worn through, as the illustration of a tire on a wheel shows; this was photographed from one of Mr. Midgley's own tires. It is said by the inventor that it is practically impossible to cause these tires to lose their grip even on that unspeakable surface known as greasy asphalt.

HOW IT LOOKS ON THE WHEEL.

Another thing to be said greatly in favor of the new idea exemplified in the latest production of the Hartford Rubber Works, is that the resiliency and life of the tire are entirely unaffected by the steel coils, and there is no tendency to mechanical disintegration or heating from internal friction. The flexibility of the coils and the independence of the staples seem to substantiate the above claim after a careful examination. The matter of addition to the weight is an important factor in the application of non-skids. In the new Hartford production this cannot be considered as a factor, as the weight is of negligible quantity.

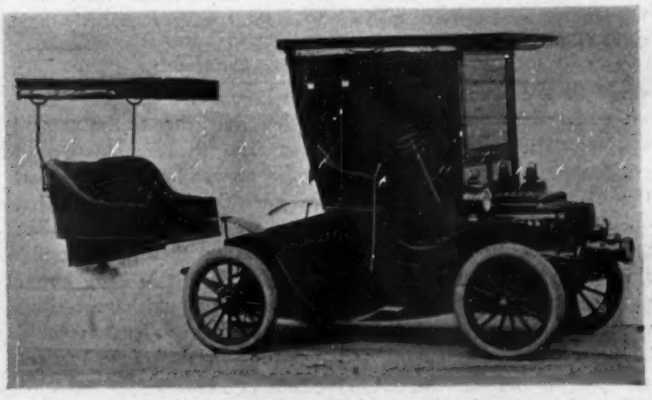
C. W. KELSEY AT WHEEL OF RECORD-BREAKING MAXWELL.
Photograph taken immediately after the arrival in New York of the two-cylinder Maxwell, which made a non-stop record run of 3,000 3-4 miles in 7 days 7 hours 31 minutes.

THE MAXWELL'S RECORD NON-STOP RUN.

When the two-cylinder Maxwell concluded its record-breaking run in New York City last week Wednesday the exact reading of its odometer was 3,000¾ miles of running under non-stop conditions. After the Boston-Worcester part of the run was completed Sales Manager C. W. Kelsey took the car in charge and drove it to New York City, finally increasing the 2,634 mileage previously obtained to 3,000¾ miles. Then Paul L. Snutsel, chairman of the Technical Committee of the New York Motor Club, pulled the plug from the car in the presence of Jefferson De Mont Thompson, chairman of the A. A. A. Racing Board. Thursday the car began its return journey to Boston, with Lucius Tyler and Ralph Coburn alternating at the wheel. Thursday night was spent in Springfield and Friday afternoon the car reached Boston.

A NOVEL DIVIDED TOP.

Not only novel, but apparently extremely convenient for use on detachable tonneau cars, is the divided top shown in the accompanying illustration and manufactured by the William F. Kramer Company, of Dayton, O., owners of the Buckeye Wagon Works. The top, when all in place, will cover the entire car; but when it is desired to use the machine as a runabout, by removing the tonneau the rear portion of the top separates from the front portion and leaves the front seat properly covered. For cold weather the car may be completely inclosed, there being side and rear curtains and a heavy glass front; there is also a curtain at the back of the front seat, to be used when the rear portion of the top is removed. When the glass front is not needed it is swung up over the driver's head and securely held, out of the way.



THE KRAMER DIVIDED TOP SHOWN SEPARATED.

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A Drastic Automobile Law and Its Results New Jersey possessed in 1905 an automobile law which in the main was most satisfactory, non-recognition of the registrations of other states being its only glaring fault. This good law was frightfully abused, and of this there is not the slightest doubt, non-residents of the commonwealth being the greatest offenders.

It was inevitable that this abuse should be followed by a drastic measure, shorn somewhat of its obnoxious features before passage, but going to the Chief Executive in a condition far from reassuring to automobilists. The liberality of one law was replaced by the arbitrary features of the so-called Frelinghuysen measure. Though its compilers and those subsequently entrusted with its enforcement have contended that its strictness and tyrannical features have been exaggerated, the fact remains that many touring automobilists from surrounding states have studiously kept away from New Jersey.

And now comes Commissioner of Motor Vehicles Smith with suggestions of changes in the present law, and what he suggests are truly radical and unquestionably improvements to the present statute. Mr. Smith would do away with the examination of automobile drivers, considering it unnecessary; he is willing that there should be greater speed in the open districts, believing that operators will then be more careful where the traffic is heavier; and arrests without warrants is another thing that the Commissioner condemns without hesitation. But he would have larger numbers to make identification easier, and he would have serious violations classed as misdemeanors so that the offenders could be extradited if residents of other states. Trials before Justices of the Peace so frequently result from the whims of rural constables that Mr. Smith would have these trials confined to the Courts of Common Pleas. He even thinks that there should be opportunity of appeal from the revoking of licenses by the Commissioner, arguing that no one man should have any such power. Furthermore, Mr. Smith places himself on record as being in favor of interstate identification tags, which is a step toward the recognition of interstate licenses. All around, it would appear that the Commissioner of Motor Vehicles of the State of New Jersey, as a result of his tenure of office, has come to look at things in a most commendable manner.

That the Frelinghuysen idea has proven a bad investment for the state is a fact that has been particularly impressed upon the hotelkeepers, who are numerous and substantial citizens of New Jersey, which, with its extensive coast line, is the greatest place for summer residence in the entire country. Mayhaps the protests of the hotel men have been a factor in the call for a wise revision of the law.

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The Attachment of Speed Indicators and Odometers. In letter No. 448, as published in last week's issue of THE AUTOMOBILE, the idea suggested by Dr. Burke is one that merits the consideration of all manufacturers of speed indicators, odometers and other devices dependent for their operation upon some sort of a connection with one of the front wheels. It undoubtedly is a fact that the provision of more or less exposed gears, star wheels, strikers, etc., at so vulnerable a point as the neighborhood of the steering pivots of front-wheel hubs, is productive of more or less damage that cannot be avoided by good construction or careful operation.

It follows very logically that if some less exposed point of attachment for these devices could be utilized, their action would be thereby rendered more reliable. Such a point certainly seems to exist in the transmission elements through which the rear wheels are driven. The rotation of the countershaft, in a double-chain drive, or of the propeller shaft, in a propeller-shaft drive, always bears a definite relation to the rear-wheel rotations, regardless of manipulation of the change-speed gears. The same usually holds good of one or more of the shafts within the change-speed gearbox, so there evidently are several points from which an indicating device of the character under consideration can be driven at a rate bearing an exact relation to the rear-wheel speed.

The only ground for possible exception to this idea might be based upon some theory that there is more slip between the rear wheels and the ground, due to the action of the propelling mechanism, than is the case with the front wheels. Against this, however, is the fact that even the front wheels are subject to more or less slip, making it possible to secure the best results only by gearing in accordance with averages obtained by counting the revolutions in going a given distance, rather than based arbitrarily upon wheel or tire sizes. By following the same plan, of observing the actual rear-wheel revolutions during a test, and gearing in accordance with the result, a speed indicator or odometer attached as suggested should give readings fully as correct as those obtained by the present methods.

Certainly differences in the degree of tire inflation, whether of front or rear wheels, would account for far greater discrepancies between the facts and the figures than could result from slight slip between the rear wheels and the road.

Besides being of interest to the indicating-device manufacturers, we commend these arguments to the manufacturers of cars. Is there any good reason why it should not be standard practice in all good machines to provide somewhere within the body of the transmission some sort of standardized projecting shaft, to which the attachment of these auxiliary devices could be made upon some definite and invariable basis? In this way there might be brought about an elimination of flexible shafting that is at once a point of weakness and more or less an eyesore and nuisance, substituting for it a plain and simple shaft rising through the footboard, adjacent to the dash. We will be interested to hear from any one with criticism or approval of this idea.

THE 1907 VANDERBILT CUP RACE.

While it is a probability that almost approaches a certainty that the 1907 Vanderbilt Cup race will take place on Long Island, the A. A. A. Racing Board, at a meeting held in New York City on Monday, authorized William K. Vanderbilt, Jr., on the occasion of his European visit early in January, to confer with the officials of the Automobile Club of France, and subsequently, if necessary, with the Automobile Club of Italy, and then the German Automobile Club may be given an opportunity.

There will be a meeting of the Affiliated Automobile Clubs of the World during the Paris Salon in December, at which session the Automobile Club of America will voice the sentiments of the American Automobile Association. One of the subjects to be considered is a revival of the Gordon-Bennett Cup race, and, if it should be decided to hold this event concurrently with the Grand Prix, the French organization might also request the privilege of including the struggle for the Vanderbilt Cup in the same affair, which would result in the greatest automobile contest ever held in the world. It will be remembered that the Gordon Bennett Cup was included in the Paris-Lyons in 1900, in the Paris-Bordeaux of 1901, and the Paris-Berlin race of 1902.

In view of the fact that France had won the Vanderbilt Cup for the third time, it was considered courteous to give the Automobile Club of France another opportunity of providing for the 1907 contest. If a declination follows, then the chance would go to Italy, but the impression prevails that that country will ask America to run the race again.

The Racing Board decided at its Monday meeting to grant the request of A. Darracq, transmitted through the Automobile Club of France, asking that the trophy won by Wagner be entrusted to Darracq & Co., which will be required to supply a bond for its safe-keeping. The trophy will be exhibited at the London and Paris shows.

COLGATE HOYT FOR A. C. A. PRESIDENCY.

The annual meeting of the Automobile Club of America will be held at the clubrooms, 753 Fifth avenue, Monday evening, November 19. The governors of the club have nominated the following ticket, which is equivalent to an election since no independent nominations are likely to be made:

President, Colgate Hoyt; first vice-president, Dr. Schuyler Skaats Wheeler; second vice-president, John E. Borne; third vice-president, Gen. George Moore Smith; treasurer, W. S. Fanshawe; governors to serve three years, Dave H. Morris, A. R. Shattuck, W. E. Scarritt.

A constitutional change hereafter places the annual meeting on the second Tuesday in April of each year instead of the third Monday in November, as at present. It is further proposed that any member who is absent from the United States for an entire calendar year shall be exempt from dues for such year, providing he gives notice of his absence to the secretary of the club.

THE LONG ISLAND MOTOR HIGHWAY.

Substantial progress continues to be made on the Long Island motor highway, rights of way for which are being willingly obtained, and stock subscriptions are coming in daily. The Plan and Scope Committee, at its session last week at the Lawyers' Club, decided upon many details for its report to the Board of Directors. William K. Vanderbilt, Jr., presided and all the other members of the committee were present: Ralph Peters, Jefferson De Mont Thompson, Dave Hennen Morris, A. R. Pardington and Dean Alvord. Mr. Morris reported that only a slight amendment to the existing laws would be necessary in securing additional legislation. The directors will hold a meeting to-morrow at the same place, at which time the Plan and Scope Committee will report, and the permanent list of officers and committees may be decided upon.

CHICAGO CLUB ELECTION HARMONIOUS

CHICAGO, Nov. 3.—The annual election and banquet of the Chicago Automobile Club at the Auditorium Hotel, November 8, at present holds the principal interest of the members. In addition to the regular club ticket which was published in the last issue of THE AUTOMOBILE, a members' ticket was announced late this week. The only difference between it and the regular ticket is in the board of directors, Robert Tarrant being nominated against L. E. Myers and C. E. Gregory against A. F. Banks. Upon the publication of this new slate there was trouble at once. Ira M. Cobe, the candidate for president, is anxious to have his old friend, L. E. Myers, on the board of directors. To-day Mr. Gregory resigned from the slate, leaving Mr. Tarrant alone. Mr. Tarrant is popular in the club, having been one of the first members, and has served on various boards with success and credit to the club, but he feels that if he ran against the entire club slate alone there would be trouble on the board of directors if he were elected. So he will hand in his resignation from the members' ticket to Assistant Secretary Charles Mead of the club either Monday or Tuesday and in this manner settle all strife among the members.

BELDING ELECTED PRESIDENT A. C. OF MD.

BALTIMORE, MD., Nov. 3.—The sixth annual meeting of the Automobile Club of Maryland was well attended, and the report of the treasurer showed the club is in a flourishing condition. It has expended over $1,000 in the past year in furnishing the new clubrooms, and the annual payment of dues will increase the funds more than $2,000, with no outstanding debts. The club has increased in membership from 86 to 223 within the past year. The officers for the ensuing year were elected as follows: President, W. S. Belding; vice-president, Richard J. Leupold; treasurer, Ernest J. Knabe, Jr.; secretary, Frank W. Darling.

BAY STATE A. A. NOTABLE GYMKHANA.

BOSTON, Nov. 3.—The first annual gymkhana games of the Bay State Automobile Association, held this afternoon on the grounds of the Newton Athletic Association, were a great success. Harry J. Murch, with a Cadillac runabout, won the chief honors, taking firsts in three events and winning the silver trophy offered for the winner of the largest number of events. The teeter board contest was the most interesting of the day. In this the contestants drove their machines on a teeter board and endeavored to bring it to an exact balance. J. A. Dowling, with a Ford runabout, was the most successful in this, and won the first prize. He brought the board to an exact balance. The twelve miles an hour race was won by H. H. Brown with a Peerless; the ball and tub race, by C. L. Dana with a Pope-Toledo, and the brake test, by John L. Snow with a Peerless.

NEW YORK MOTOR CLUB ECONOMY TEST.

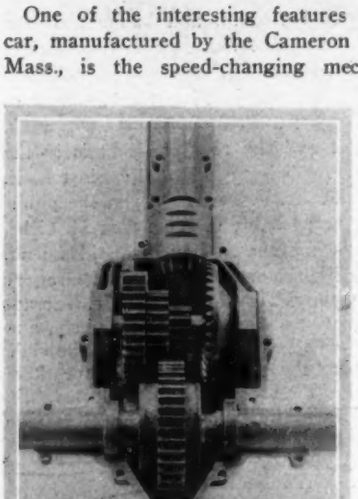
The New York Motor Club has decided to conduct its Economy Test November 14, 15 and 16, the route to be the same as that outlined when the event was originally scheduled for August and then postponed. The first day's run will be from New York to Albany, 150 miles; second day, Albany to Springfield, Mass., 131 miles; and third day, Springfield to New York, 149 miles. The entry fee will be $100 for each car, and entries will close November 10 with Secretary A. B. Tucker, 31 West Forty-second street, New York City.

A.C.A. POSTPONES ITS MOTOR WAGON CONTEST.

A canvass of the makers of commercial automobiles has caused the Automobile Club of America to postpone its contest, originally scheduled for November 7 to 10, until next spring. It was found that the makers were too busy preparing for the New York, Chicago and Boston shows, the first of which will come in December under auspices of the Automobile Club of America, in the Grand Central Palace, New York City.

CAMERON CHANGE SPEED GEAR.

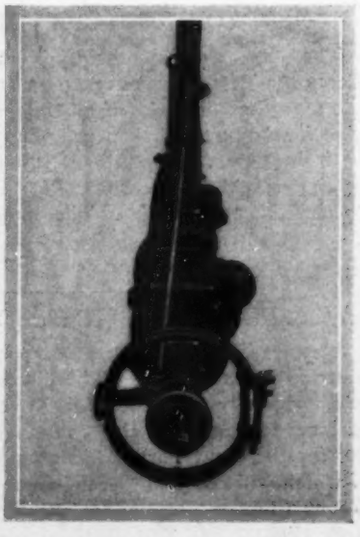
One of the interesting features of the Cameron air-cooled car, manufactured by the Cameron Car Company, of Brockton, Mass., is the speed-changing mechanism shown in the accompanying illustrations. While the various speeds are obtained by bringing different sized gears into mesh, the transmission differs radically from the sliding gear transmission in that the gears' teeth do not slide into mesh edgewise, but the gears are first brought into the same vertical plane and then moved toward each other until the teeth mesh. Again, there is always the same number of gears in mesh, no matter what speed is engaged, so that there is no more frictional loss in driving on a low gear than on a high one.



CAMERON GEAR WITH COVER REMOVED.

There is a propeller shaft carrying a bevel pinion, as in the ordinary type of shaft-driven car; but the shaft extends straight back from the clutch and the gearbox is mounted on and forms part of the rear axle assembly. A squared countershaft is mounted parallel to the rear axle, between it and the rear end of the propeller shaft, and is driven by the bevel pinion. The countershaft carries three spur gears of different sizes, and on the differential casing is mounted a large spur gear. The bank of gears on the countershaft can be moved longitudinally on the squared shaft and can also be moved at right angles. In changing gears a pedal is depressed, withdrawing the clutch and at the same time unlocking the gears. A side lever is then brought into neutral position, which unmeshes the gears; is brought opposite the proper notch, which brings the appropriate gears opposite each other, and, finally, is pushed into the notch, which meshes the gears. The pedal is then released, locking the gears and letting in the clutch, which cannot be done until the gears are fully meshed. The reverse pinion is entirely idle when not in use and in coasting all gears are out of mesh and stationary. As the illustrations show, the gear is exceedingly compact, and considerable weight and much space are saved by combining the gear case with the rear axle casing; the use of only one gear shaft is also an advantage, saving weight and friction.

REAR AXLE SYSTEM COMPLETE SHOWING GEAR CASE.



AXLE END AND BRAKE BAND.

PACKARD TO MAKE A TWO-TON TRUCK.

DETROIT, Nov. 5.—One of the most steadily growing automobile factories in the country has been that of the Packard Motor Car Company. When the company moved to Detroit from Warren, O., four years ago, it laid out and built a factory in quadrangle style, which would allow continual addition without ruining interior light or preventing a systematic course of productive work. This original plant contained 100,000 square feet of floor space. The factory that is now running contains 325,000 square feet. There is almost done another addition of 30,000 square feet, so that in a few weeks the company will be occupying 355,000 square feet of space. This space will produce the 1907 output, but plans have already been drawn and preparations started for the increase of the factory, within the year, by 225,000 square feet, so that for the production of 1908 cars, beginning June, 1907, there will be a total of 580,000 square feet of floor space—over thirteen acres devoted to building Packard motor cars.

Of course this enlargement of nearly 100 per cent. contemplates giving considerable attention to the building of commercial vehicles. The company is now experimenting with a new commercial Packard of two-ton normal capacity and capable of a ton safe overload. Manufacture of this will be commenced within a few months. It is now being tested in constant hauling service.

IT IS NOW THE WINCHESTER SPEEDOMETER.

During the past year the McGiehan Manufacturing Company, 1557 Broadway, New York, has been reorganized with new capital, new offices and new management, and will hereafter be known as the Winchester Speedometer Company, Incorporated. The well-known speed- and distance-indicating devices manufactured by this concern will hereafter be known as Winchester speedometers and Winchester odometers. The business is under the general management of its president, C. A. Winch. The factory, at Broadway and Forty-sixth street, is equipped with all the modern machinery necessary for the manufacture of fine instruments for fine cars. The company has always made a strong point of immediate deliveries and the standard they have set in this respect will be strictly adhered to. The company will exhibit at the New York and Chicago shows.

THE REO PLANT'S TREMENDOUS CAPACITY.

LANSING, MICH., Nov. 5.—R. E. Olds, president of the Reo Motor Car Company, says: "With the addition of our two new large buildings, we have a total floor space of 301,000 square feet, which makes the Reo the largest plant on the American continent devoted exclusively to the manufacture of automobiles. There are at the present time about 1,500 men employed in the manufacture of Reo cars. This number includes the outside contracts, as axle, bodies, etc. The Reo factory turns out 100,000 automobile pieces every ten hours. With the new buildings that are just completed, and the $50,000 worth of new machinery that is now being put in position, it will easily bring the Reo capacity up to 160 cars per week, commencing about January 1.

FREE ALCOHOL'S IMMEDIATE FUTURE.

WASHINGTON, D. C., Nov. 3.—Many inquiries have come to the Department of Agriculture regarding the manufacture of denatured alcohol, its uses, and the regulations under which it may be used, since the enactment of the free alcohol law. A large number of inquirers have the erroneous impression that the execution of the law is confided to the Department of Agriculture. As a matter of fact, the execution of the law rests with the Internal Revenue Bureau of the Treasury Department. In order to answer as fully as possible these inquiries and to inform the general public about the sources and manufacture of industrial alcohol, it has been deemed advisable to prepare a bulletin upon this subject. The author is H. W. Wiley, Chief of the Bureau of Chemistry of the Department of Agriculture, and he has gone very thoroughly into the subject. He sums up the situation in the following words:

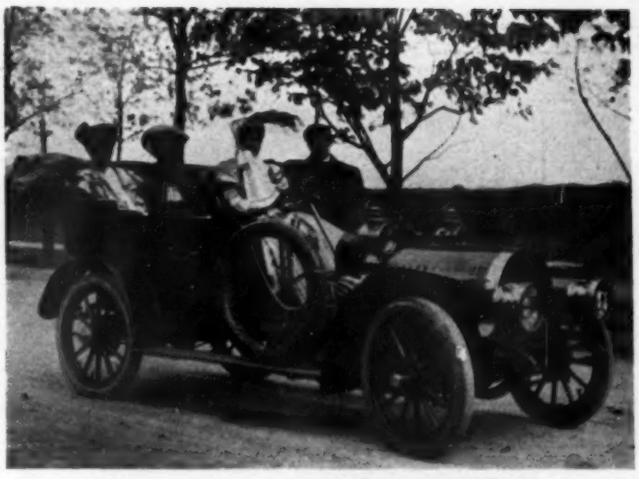
"When industrial alcohol is made at a price at which it can compete with petroleum and gasoline, it will doubtless be preferred for illumination, heating, motive power, and the manufacture of certain commodities, because of its greater safety and more pleasant odor. Under the present conditions it is not probable that industrial alcohol can be offered upon the market at much less than 40 cents per gallon of 95 per cent. strength. It is believed, however, that by paying attention to unused sources of raw materials and increased production thereof with improved methods of manufacture and denaturing, the price can be very much diminished. As the price falls the quantities used for industrial purposes will correspondingly increase, so that small profits both to the farmer and to the manufacturer will bring large returns by reason of the greater quantities of the materials handled.

"The benefits which are to accrue from the use of industrial alcohol free of tax have probably been overestimated by the people at large, but that material benefits will accrue is not a subject of doubt. These benefits will come, not suddenly, but slowly, as agricultural products are more abundant, technical methods of manufacture improved, and the method of utilizing the industrial alcohol better understood. Onr people should not, however, be disappointed should many years elapse before the magnitude of the product used for industrial purposes reaches the figure already attained by Germany and some of the other European nations.

"Of the raw materials which can be utilized for the manufacture of alcohol, Indian corn is by far the most abundant, and the most promising source at the present time. The average price of potatoes must be very much decreased before raw material of this kind can come into competition with Indian corn as a source of alcohol. Promising sources which are not now utilized for the manufacture of alcohol in this country are the potato, the sweet potato, the yam, sorghum, molasses from the cane sugar, and beet-sugar factories, and the Indian corn stalk. Waste materials of other manufacturing industries, such as those related to fruits and vegetables, may incidentally be utilized for manufacturing purposes, but could not of themselves become independent sources of profitable industrial alcohol."

A PLACE FOR THE QUAKER SHOW.

PHILADELPHIA, Nov. 5.—In the words of a famous local compounder of nostrums, "There is hope!" The Show Committee of the Philadelphia Automobile Trade Association sees light ahead in its efforts to secure a building sufficiently large to accommodate the many demands for space from local dealers. During the thorough search of the past fortnight the old Sharpless department store building, at Eighth and Chestnut streets, came under the committee's observation. It is at present unoccupied, except for window display purposes by an adjoining concern. At its meeting this week the committee will make its final decision, it being understood that the choice lies between the Sharpless building and one of the two armory buildings. The larger of these, that of the Second Regiment, has been leased as a roller-skating rink on nights when not in use for drill purposes.



ELSIE JANIS DRIVING HER 35-HORSEPOWER RAINIER.
The heroine of "The Vanderbilt Cup," while playing in Chicago, took daily drives on the Grand Boulevard.

INDIANA FIRMS RECEIVE LARGE ORDERS.

ANDERSON, IND., Nov. 5.—Orders that will keep two of this city's largest factories busy for some time have been received by the Buckeye Manufacturing Company, makers of the Lambert automobiles, and by the Westerfield Motor Company.

The Buckeye Manufacturing Company this week received an order from the American Express Company for 100 Lambert trucks. It is understood that they are to be of a heavy type and are to be used in New York City. The order is the largest of its kind ever received in Indiana.

An order for gasoline engines to the extent of $120,000 has been received by the Westerfield Motor Company. These engines are to be shipped at the rate of one a day for ninety days, when the shipments must be doubled. The engines, it is understood, are for the London market.

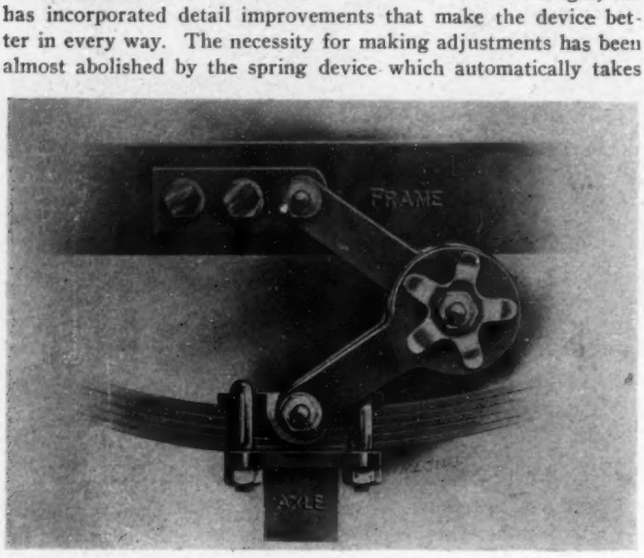
LICENSED ASSOCIATION SECURES JUDGMENT.

In the United States Circuit Court for the Eastern District of Pennsylvania, the owners of the Selden patent have secured a decree and judgment against Stephen de Feher, a Philadelphia dealer, who sold a number of foreign gasoline cars without a license from the A. L. A. M. Judgment is given in the sum of $3,763.60, the amount of the defendant's profits, and in addition the sum of $432.87, the amount of the complainant's damages with interest on the total from July, 1906. The defendant has been such in various suits.

SOCIETY GIRL AND TEDDY BEAR IN COLUMBIA VICTORIA.

TRUFFAULT-HARTFORD FOR 1907.

In bringing out the Truffault-Hartford shock absorber for next season, the manufacturers, the Hartford Suspension Company, of 67 Vestry street, New York, has made no radical changes, but has incorporated detail improvements that make the device better in every way. The necessity for making adjustments has been almost abolished by the spring device which automatically takes



THE NEW TRUFFAULT-HARTFORD SHOWS IMPROVED DETAILS.

up wear. The lower arm is made double, as in the 1906 model, so that there are three friction disks, one working between the other two. The friction surfaces are chemically treated to make them capable of absorbing lubricant, and this lubricant is drawn out onto the surfaces only when the friction becomes so great as to cause danger of abrasion; the heat then brings out enough lubricant to bring the friction down to the normal point again. The manufacturers state that the suspensions will not require adjustment until at least ten thousand miles have been covered. There are no rights or lefts, so that there is no possibility of getting the suspensions on the wrong side. The movements are in straight lines and there is no possibility of shearing off. The friction has been increased very greatly and the ends are dustproof.

LIVE CLEVELAND TRADE DOINGS.

CLEVELAND, O., Nov. 5.—The Royal Motor Car Company has increased its capital stock from $200,000 to $500,000 and has changed its name to the Royal Motor Car and Manufacturing Company. A large addition to the factory is now under way, and the company is having preliminary plans prepared for an entirely new plant which may be erected next year.

The F. B. Stearns Company has bought 100 feet of land adjoining its factory on Euclid avenue and is preparing to erect another large addition immediately. In the past two years this company has trebled the capacity of its factory, and this will give 50 per cent. increase over present capacity.

The Winton Motor Carriage Company has shipped to the Olympia motor show, which opens in London, November 15, a show car and a demonstration car of each of its two models, the 30-horsepower Model X-I-V and the 40-horsepower Model M.

THE NEW YORK CITY RENAULT BRANCH.

The American agency for the Renault, with Paul Lacroix as general manager, is now open at 1776 Broadway, corner Fifty-seventh street, New York City. The Renault branch will be well represented in the December show in the Grand Central Palace, its importations for that event including an 8-9-horsepower taximeter cab, such as used in the streets of Paris, a 10-14-horsepower Rothschild landaulet, a 14-20-horsepower double phaeton labourdette, a 20-30-h.p. Kellner brougham and a 35-45-h.p. Muhlbacher limousine.

RECENT TRADE CHANGES AT THE HUB.

BOSTON, Nov. 5.—Shifts in the Boston automobile trade continue to be frequent, and during the past fortnight another batch of changes has been announced, which, with those that took place earlier in the fall, have put an entirely new complexion upon trade circles in this city. One of the latest announcements is the formation of the George H. Lowe Company, with the veteran George H. Lowe, for many years manager of the White company's branch and more recently associated with the Wayne company, as manager. This company will handle the Aerocar, which was formerly represented here by the Imperial Automobile Company. Its location has not yet been definitely decided upon.

This week the Franklin Automobile Company, which succeeds A. R. Bangs as the representative of the Franklin cars, opened a temporary salesroom on upper Boylston street. A little later, by the first of the year probably, the Franklin company will open a fine new salesroom lower down on Boylston street near Copley square. Charles S. Henshaw, formerly agent for the Thomas, and now agent for the Haynes, is also soon to move, and will open a large establishment in the newer automobile district on Massachusetts avenue, corner of Newbury street. Mr. Henshaw has recently taken on the Columbus line of electric carriages. In the same building which Mr. Henshaw is to occupy will be the salesrooms of the A. E. Morrison Company, which has the Oldsmobile agency and the Stearns agency.

Several changes have also been made at the Motor Mart in Park square. The Park Square Automobile station, of which C. F. Whitney has long been the manager, has taken a salesroom in the Motor Mart, where it is showing the Stoddard-Dayton and the Berliet of the American Locomotive Motor Car Company, both of which agencies have been placed recently. Alongside this salesroom is that of the agents for the American car. Alvan T. Fuller, who has the Packard and the Cadillac agencies, has taken additional shop room in the Motor Mart, and now has practically the whole of the second story on the Columbus avenue side. The Harry Fosdick Company, which last year had the Fiat, Studebaker, Lozier, and Waltham Orient agencies, has secured the Thomas and the Baker electric agencies and will maintain its salesroom in the Motor Mart.

The Studebaker interests have been taken over by the Prentiss Motor Car Company, which is about to open a salesroom in the Locomobile building on Berkeley street. The Locomobile branch will shortly be moved to the new building being constructed by the company on upper Newbury street. The White company is also about ready to begin operations on its new garage on upper Newbury street.

A new agency that has just been announced is that of the Dragon Automobile Company, the new Philadelphia concern. It will have a salesroom at 117 Massachusetts avenue. The Bay State Automobile Company, of Boylston street, is soon to bring out a new car, the "Bay State 40."

A SUCCESSFUL AUTO FIRE ENGINE.

NEWARK, N. J., Nov. 5.—The automobile fire engine recently purchased by the Newark fire department was given an official test on Thursday, and the officials who were instrumental in the purchase of it expressed themselves as well pleased. The automobile showed in the test that it can pump 1,100 gallons of water a minute; that it can speed at the rate of twenty miles an hour over a level road, and can climb steep hills with little difficulty. It was purchased from the Manchester Locomotive Works.

DRAGON TO BE BUILT IN PHILADELPHIA.

PHILADELPHIA, Nov. 5.—The event of greatest interest in local trade circles last week was the announcement that the Dragon Automobile Company had secured the old plant of the J. G. Brill Car Company, in West Philadelphia, and was already making necessary alterations and installing machinery with a view to commencing operations about the first of next year.

THE GROWING GARAGE LIST.

Montreal to Have a Large and Very Up-to-date Garage.

The Canadian Automobile Company, of Montreal, selling agents for the Cadillac, Oldsmobile and Darracq for the province of Quebec, is about to build a large garage on the west side of Guy street, below St. Catharine street, that city. The new building will be of pressed brick construction, two stories in height. When completed it will be one of the largest and most modern garages in Canada. Plans have been prepared for the new building, but have not been passed on by the directors of the company. The building will most likely have a frontage of 58 feet with a depth of 113 feet. In the front will be the offices and a large show room, while the garage proper will be in the rear. There will be a wide lane alongside the building, so that the cars will be able to gain access to the garage without passing through the show rooms. The second story will probably be used for storage purposes and will also include a well-equipped repair shop. The building will be of absolutely fireproof construction.

Cleveland's New $50,000 Garage About Completed.

An unusually fine garage is being erected in East Nineteenth street, Cleveland, O., by the Metropolitan Garage Company. The building will measure 140 feet in depth and the same in frontage and will be two stories high, exclusive of the basement. Pressed brick and steel will be used in the construction. The cost of the building alone will be about $50,000; it will be finished about November 20. W. C. Anderson is president of the company and J. Theo Tehen is vice-president; H. L. Finley is secretary and treasurer. The company has the northern Ohio agency for the Pierce Arrow and Cadillac gasoline cars and the Babcock electrics.

New Garage for Connecticut's Seat of Learning.

Dennis A. Blakeslee, the active head of the large contracting firm of C. A. Blakeslee & Sons, of New Haven, Conn., will shortly engage in the automobile industry. Last week Major Blakeslee purchased a large plot of centrally located real estate, at 237 Green street, for the special purpose of erecting thereon a large automobile garage and machine shop. He will organize a company to conduct the business, of which he will be the leading spirit.

NOTES OF THE GARAGES.

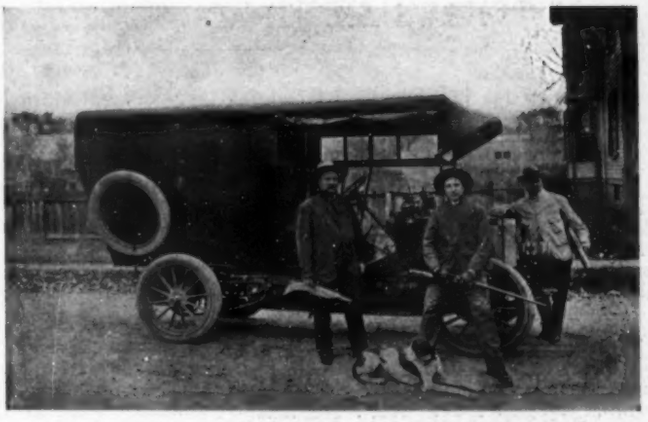
The Newark Motor Car Company, of Newark, N. J., which has the Reo, Cleveland and Premier agencies, is building a fine new garage of concrete block construction at the corner of Fourteenth street and Central avenue. The building will measure 120 by 70 feet. As soon as it is finished it will be occupied by the owning company.

F. W. Rogers, of 2,100 Evanston avenue, Chicago, will open a garage in a new building he is erecting. The building will be two stories high, but only the lower floor will be used as a garage. The garage will measure 48 by 100 feet and will be absolutely fireproof. It will be occupied about November 20.

One of the oldest automobile dealers of Atlanta, Ga., Frank Steinhauer, formerly of the Atlanta Automobile Company, will soon open a new garage at 56 Edgewood avenue, Atlanta, with a capacity of fifty cars. Repair work of all kinds will be done.

Buena Park Auto Station, 221 Clarendon avenue, Chicago, has been in active business for two months and is working nearly to its full capacity; a lively business is carried on in renting cars. This garage measures 40 by 81 feet.

An automobile repair shop is being erected by Garbutt & Ware, of Fitzgerald, Ga., on Central avenue. The shop will measure 34 by 70 feet.



ROY E. FAYE'S 40-HORSEPOWER MATHESON HUNTING CAR.

THE MATHESON IN NEW ENGLAND.

It has been arranged by the Matheson Company, of New York, to establish a Boston headquarters, through which the New England trade will be supplied, to be managed by Edward F. Gleason, a prominent New England automobilist. Dr. Gleason has arranged to open a salesroom on Boylston street, and will establish sub-agencies in all the leading cities of the New England states. In this connection Roy E. Faye will be associated with Dr. Gleason as distributing agent.

Mr. Faye has recently acquired a 40-horsepower Matheson car, which he has transformed into a hunting and camping machine of very novel type, as the accompanying illustrations of the exterior and interior interestingly demonstrate.

Upon the chassis is built a strong, light framework of hickory; the roof is of heavy canvas, painted black. Inside are four bunks each two feet wide and six feet long, equipped with pneumatic mattresses. The floor is carpeted to keep out draughts, dampness and dust. Electricity is used for lighting, there being a storage battery which is charged by a small dynamo when the engine is running. A little radiator, taking hot water from the engine-cooling system, serves to warm the interior while the car is on the move. The electric outfit is under the driver's seat, out of the way. Under the other seat are compartments for tools, spare parts, inner tubes, and ammunition, and there is a compartment with specially fitted tin boxes for containing provisions. Ice is carried in a box under the chassis, which slides in and out like a drawer.

The side curtains of the car may be hauled out and staked to the ground, and a piece of canvas stretched from the front of the roof forward of the car, making a camp twenty-seven feet long. The car has started for a hunting trip in Northern Massachusetts, manned by Mr. Faye, Dr. Gleason, Dr. A. H. Tuttle, Freeman N. Young and F. M. Archer.

INTERIOR VIEW OF CAR, SHOWING BUNKS, ETC.

NEWS AND TRADE MISCELLANY.

William Jungjohann, of Muscatine, Ia., has purchased the business of the Davenport Auto Company, Davenport, Ia., and will continue it under the same name and along the same lines as in the past.

Last week building operations were started on the new motor car shops of the Union Pacific Railroad at Omaha, Neb., where the motor cars that will be used on certain divisions of the road will be built. The shops will cost $150,000.

The officials of the American Electromobile Company, of Detroit, Mich., state that the business of the concern is growing so rapidly that the present quarters of the concern, at 1567-69 River street, are inadequate. It is probable that a new plant will be built in the near future.

The Maxwell agency at Los Angeles, Cal., has been organized into the Maxwell-Briscoe-Willcox Company, with a capital of $100,000. J. W. Willcox is president and manager, and E. J. Willcox secretary and treasurer. Arizona and New Mexico are included in the company's territory.

Last week in these columns announcement was made of the opening of an automobile designing school by E. Favary. The name and address were not correctly given. The institution is known as Favary's Automobile Designing School, and the location is 1416 Broadway, corner Thirty-ninth street.

There will be a new Chicago-made automobile on the market for 1907 in the shape of a combination runabout and touring car manufactured by the Holmes-Schmidt Motor Company. The motor will be four-cylinder of 25-horsepower, and the body will be runabout type, with detachable tonneau.

The Warner Instrument Company, of Beloit, Wis., manufacturers of the Auto-Meter, finding the quarters in Boston insufficient to handle the increased business, removed November 1 to larger quarters at 925 Boylston street, Boston. Arthur H. Brown has succeeded D. W. Dunn as the Boston representative.

The New York branch of the Kilgore Auto Air Cushion Company is now permanently located at 2023 Broadway. Shops have been established in the vicinity of Fifty-seventh street and Thirty-eighth street, where the Kilgore pneumatic shock eliminators will be promptly and properly attached. Other shops will be established in Jersey City, Brooklyn, and Staten Island as soon as possible.

In the race meet at Indianapolis, Ind., October 20, the National entered two cars each in four events, and won first and second in three races. In the report published in THE AUTOMOBILE it was erroneously stated that Tom Kincaid won the event for stock touring cars costing over $2,000 with a 40-horsepower Matheson. Kincaid drove a 40-horsepower National.

A well known user of a 24-horsepower Columbia relates the following: "There is one great convenience about my Columbia motor, and that is the ease with which carbon deposits can be removed from the piston head, compression chamber, and the walls of the cylinders, without taking down the engine. I remove the inlet valve and seat and the igniter and bring the piston to its highest point of travel when I can scrape the entire surface by means of a long hooked scraper operated through the igniter port. I have also made two other scrapers by which I can reach the walls of the compression chamber and after cleaning them wash with kerosene oil. With the other scraper I clean the cylinder walls without loss of time and with very little trouble. This plan I have found to be a good one and very effective."

Occasionally new investigators of motor car construction are confused by the term "I-beam" axle, which is appearing quite frequently this fall in connection with motor-car announcements, as it did a year ago in Columbia catalogues and advertising. All persons familiar with modern steel building construction instantly recognize the term "I-beam." If the beam was sawed in two the end of the severed parts would form a letter "I."

The results of the Town Motor Carriage competition held on October 15, 16, and 17 by the Automobile Club of Great Britain and Ireland, have just been announced, and have been cabled to this country. The highest award, a gold medal, was made to the White Steamer. This was the first competition of the kind ever held, and the object of the competition, as stated by the club, was "to show the advantages of different types of self-propelled vehicles for town work."

The new 1907 Westinghouse touring car and runabout are on exhibition at 50 West Sixty-seventh street, New York City. The Westinghouse product is manufactured at Havre, France, by the Societe Anonyme Westinghouse, whose representatives in this country are Maurice Coster, head of the export branch of the Westinghouse Electrical and Manufacturing Company, and Alexander M. Thackara, Jr., the latter being the sales manager. Recent prominent Americans who have purchased Westinghouse cars are Colgate Hoyt, Paul D. Cravath, and Levi P. Morton.

The National Brake and Clutch Company, 16 State street, Boston, Mass., reports that automobile manufacturers have found their cork inserts so satisfactory in eliminating clutch slipping, gripping and other troubles, that they will be universally adopted by many of the largest makers for their 1907 product. The inserts are not adopted, however, until exhaustive tests have proved their utility. Among the large makers that have most recently completed tests, and have adopted cork inserts as a result, are the Geo. N. Pierce Company, the Autocar Company, the Nordyke & Marmon Company, the Garford Company, and others.

The Young Men's Christian Association at Tarrytown, N. Y., is to institute this winter an automobile school for the benefit of its members. A series of lectures and other details of interest, including shop work and practical road training, will be begun. The Maxwell-Briscoe Company, whose factory is located in the Phillipse Manor grounds, at Tarrytown, is connected with the local Y. M. C. A. in this movement, and will supply parts for class work, and will also give the use of chassis from time to time for pupils' study. An important feature of the school will be a series of ten lectures on automobile construction, repairs, and management, by H. A. Grant, M. E., of the Maxwell-Briscoe Motor Company. The work of the school will begin about November 15. A large attendance is assured.

Henry Ford has been appointed one of the three country road commissioners of Wayne County, Michigan. Mr. Ford was born on a Wayne County farm, which he still tills as assiduously as he builds automobiles in the big city nearby. He has been a diligent worker in the good roads cause and a stanch supporter of State Highway Commissioner Earle's plans for the improvement of Michigan highways. Ford believes and preaches that, with the advent of good roads, the farmer will profit by the development of the automobile to a greater extent than any other citizen. The auto truck and auto tractor, vehicles designed for the more expeditious transportation of garden truck and farm produce to the market, he says, will come into general use and this will mark the beginning of an epoch of enhanced values in such products. This, together with the introduction of vegetable alcohol as a substitute for gasoline, asserts Mr. Ford, will lessen the labor and increase the revenue of the farmer to a degree little dreamed of by the agriculturist as yet.

A new departure in guarantees has been decided upon by the Smith & Mabley Manufacturing Company. Beginning with this month Simplex cars will be sold with a certificate of perpetual guarantee. This guarantees the car against defects in material, workmanship, or mechanism, to the extent of replacing any part or parts that may bend or break, or otherwise prove defective, provided such defect or defects are not caused by accident, misuse or neglect. It is practically the ordinary standard guarantee, but is made for all time instead of for one year, as has always been the limit with American manufacturers. "We have decided to give this perpetual guarantee," said C. R. Mabley, in explaining it, "because we are absolutely sure that we put into Simplex cars only the best of materials. Our Knapp steel is genuine imported steel, and all other materials are equally high grade. Being perfectly sure of our construction, we can afford to do what no other manufacturer has ever done. We will make replacements at our factory under the best mechanical auspices."

NEW AGENCIES ESTABLISHED.

F. J. Pardee & Co. have been made Chicago representatives for the American Mors, manufactured by the St. Louis Car Company.

The Witherbee Igniter Company has established a branch in Chicago at 1429 Michigan avenue, in charge of Mark W. Heath. The branch will be equipped to perform every repair and charge batteries.

C. S. Henshaw, New England representative of the Haynes, has closed agencies with the Reichert Automobile Company, New Haven, Conn., and the Maine Motor Carriage Company, Portland, Me.

Armistead Burwell, Jr., a well-known dealer of Charlotte, N. C., has been appointed agent for the Rambler line for North and South Carolina. He has also secured the agency for the Ford for North Carolina.

The Rutledge-Bray Company, of San Francisco and Oakland, have been appointed agents for the Elmore for the northern half of California. A. J. Smith, of Los Angeles, the Pacific Coast agent for the Elmore, negotiated the deal.

C. F. Whitney, of the Park Square Auto Station, Boston, has opened his new salesrooms for the Stoddard-Dayton, which he will represent in New England during the

coming year. The store is located at the Columbus avenue and Church street corner of the new Boston Motor Mart.

The Argus Import Motor Company has established headquarters at 17 East Thirty-fourth street, New York City, for the sale of Argus automobiles, which are manufactured by the Argus Company, of Berlin, Germany. Seven different types are made, ranging from 20 to 200-horsepower.

Three new agencies have been placed in Los Angeles, Cal., within the past two weeks. The Occident Auto Company, with C. Cole at its head, has taken the agency for the Cartercar; A. C. Steart is the new representative of the Dorris, and the Lord Motor Company is to sell the Mason and the Cleveland lines.

R. W. Cook & Co., who will handle the Royal Tourist in Chicago next year, have secured temporary salesrooms at 1255 Michigan avenue. Mr. Cook is authority for the statement that the Royal Tourist people will manufacture a runabout for next season, also a touring car of 60-horsepower, as well as the 40-horsepower car, as heretofore.

The McDuffee Automobile Company, of Chicago, has secured the territory of the Middle West for the sale of the DeLuxe car, which is to be manufactured in both Detroit and Toledo. The company's selling territory for this car includes North and South Dakota, Minnesota, Wisconsin, Iowa, Nebraska, Kansas, Missouri, Indiana, Illinois, and Western Michigan. The McDuffee company will also sell the Kissel car.

The Northern Motor Car Company, Detroit, states that it has completed arrangements with all of its present agents for a continued handling of Northerns in 1907. These have been added to the list: O. L. Bartlett, Palm City, Ill.; L. R. Clarkson Vehicle Co., Corpus Christi, Tex.; Nevada Mobile & Transit Co., Gold Field, Nev. The San Francisco agency has placed an order for forty cars, divided between two and four-cylinder models.

The Locomobile Company of America announces the following new agencies, in addition to the old-established dealers handling the Locomobile, about fifty in number: Compania Mexicana de Vehiculos Electricos, City of Mexico; Success Auto Company, Los Angeles, Cal.; H. M. Covey, Portland, Ore.; Jordan Auto Company, Minneapolis, Minn.; Seattle Auto Company, Seattle, Wash.; H. H. Brown, Southbury, Conn.; Welch Bros. Motor Car Company, Milwaukee, Wis.

Owing to the retirement of Fred M. Herbst from the concern, the Automobile and Touring Company, of Wilmington, Del., has discontinued business. Lot M. Noble, the other partner, has formed a partnership with Robert W. Montgomery, formerly assistant cashier of the People's Savings Bank, of that city, and will establish a general automobile supply business, the name and location of which will be settled within the next ten days. The agencies for several high-grade cars will also be secured.

RECENT REMOVALS.

The Essex Automobile Company, of Newark, N. J., has removed from 79 Orange street to 518 Broad street, that city. The company is agent for the Jackson car.

The Prentiss Motor Car Company, of Boston, who will handle the Studebaker line in New England, expects to get into its new store on Berkeley street, that city, during the present week.

The Tincher Motor Car Company, of Chicago, is contemplating the removal of its plant to South Bend, Ind., providing a proper site can be secured and local inducements enough offered to warrant the change of location.

The Dodge Motor Vehicle Company, which is the new distributing house in Boston for the Pope lines, has decided to locate at 223 Columbus avenue, the site occupied for many years in Boston by the salesrooms of the Pope Manufacturing Company.

The Cornish-Friedberg Auto Company, Chicago representatives of the Aerocar and Wayne, are preparing to remove from 347 Wabash avenue to large and commodious quarters which are being constructed at 1233 Michigan avenue, in the heart of the automobile selling district.

The A. G. Southworth Company, metropolitan agents for all the Pope automobiles, took possession November 1 of the Pope Manufacturing Company's New York branch, 1733 Broadway, which will hereafter be run as an agency. Mr. Southworth will make his headquarters at the Broadway store and A. W. Blanchard will be in charge of the Brooklyn store at 342 Flatbush avenue.

PERSONAL TRADE MENTION.

George H. Day, general manager of the Association of Licensed Automobile Manufacturers, has returned to New York from his recent vacation trip in the South.

Jesse Draper, general sales manager, and A. L. Kull, manager of the New York branch of the Wayne Automobile Company, were in Chicago last week on a business trip.

Felix T. Hughes, formerly with the Webb Instrument Company, of New York, has joined the staff of the Hamilton Automobile Company, of Chicago, as assistant sales manager.

General Manager Alfred Reeves, of the American Motor Car Manufacturers' Association, has been on a western trip during the past week. He visited Detroit, Kenosha and several other automobile manufacturing centers.

Al Poole, who was Joe Tracy's mechanician in the Vanderbilt Cup race, has gone to Chicago to demonstrate Isotta Fraschini and Simplex cars for the Hamilton Automobile Company of that city, Western agents for Smith & Mabley, Inc.

F. W. Fisher, formerly of the Central Automobile Company, of Pittsburg, Pa., has formed a partnership with W. G. Hanley, of the Liberty Automobile, of that city, and will handle the National and Mitchell lines during the coming year.

George G. Reed, of the Reed-Underhill Company, of Boston, agents for the Knox and Stearns, is making a six weeks' trip to western Nevada, where some three months ago his company established an automobile stage line from Johnnie to Greenville, in the heart of the gold mining district.

George F. Lemon, for several years associated with the Orlando F. Weber Company, of Chicago, agents for the Pope lines, has been promoted to the position of sales manager. Walter Jones, formerly with the Knox Motor Truck Company's Chicago salesrooms, has joined the Weber selling force.

Osmond Barringer, a leading dealer of Charlotte, N. C., has just completed a tour of the northern factories for the purpose of negotiating for the production of an automobile truck for handling baled cotton in the Southern States, for which Mr. Barringer states there is an urgent demand in the South.

W. R. Mooney, manager of the Central Automobile Company, of Pittsburg, Pa., has sold his interest in that concern to Joseph Gilmore, of Steubenville, Pa., who will take as an active partner in the business E. L. Seeley, formerly assistant manager. The company will handle the Reo again next season.

Charles Lehmann, who acted as Elliott F. Shepard's mechanician in the Grank Prix of the Automobile Club of France last June and also in the Vanderbilt Cup race, sailed last Thursday for Havre on La Provence of the French line. Lehmann is to be married, and will bring his wife to this country. He has received a very attractive offer from a well-known New Yorker to take charge of his stable of cars and act as racing driver if required.

INGENIOUS ASSEMBLING DEVICE

One of the neatest devices ever installed in an automobile factory has become a part of the mechanical equipment of the E. R. Thomas Detroit Company. It consists of four pieces of tubing set in the floor with sliding shafts, turned at the end enough to catch and hold a chassis ready for assembling. The shafts are trued to exactly the same height from the floor, and should a new frame be slightly out of line, it is shown, not only instantly, but the variance is proven in a manner that might not appear so clear as by the use of the usual spirit level. Another advantage accruing from the use of this device is that by means of lock points on the four sliding shafts the chassis can be raised or lowered to any point desired by the workman. An overhead trolley, covering all points in the assembling, carries the heavier parts direct to the workman's hands for the Thomas Forty, as the new car is known. One of the best points about the new chassis holder, however, is that the chassis at no time rests on the springs, as is the case generally in factories of this kind, but at all times on the frame. For this reason there is no hit or miss kind of accuracy which might ensue from the variation in deflection of the four springs during the assemblage of the car. Altogether, the device is one of the most unique, and, at the same time, useful ones used in an automobile factory, and has earned a great deal of praise from engineers who have seen it in operation.

RECENT INCORPORATIONS.

The Aerocar Company, Detroit; capital stock increased from $400,000 to $750,000.

Miller Speedmeter Company, New York; capital stock, $2,800. To make appliances for automobiles. Incorporators, Charles E. Miller, R. Johnson.

A. L. Kull Automobile Company, New York; capital stock, $50,000. To build automobiles. Incorporators, A. L. Kull, H. A. Lehman and D. Hamilton.

Knox Automobile Company of Illinois, Chicago; capital, $5,000. To manufacture and repair automobiles. Incorporators, Theo. C. Robinson, William W. Hodge, and E. Rising.

R. M. Owen & Co., Chicago; capital, $2,000. To manufacture and deal in automobiles. Incorporators, Otto C. Owen, Raymond M. Owen, and Louis J. Ollier.

Michigan Screw Company, Lansing, Mich. To manufacture screws and other small parts for automobiles. President, R. E. Olds; secretary and treasurer, M. R. Potter; general manager, Hugo Lumberg; sales manager, W. M. Roberts.

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A PEERLESS four-cylinder touring car, fully equipped and recently overhauled, for sale cheap; rare bargain for some one; would consider smaller car or runabout in trade. The Starin Company, 72-74 Main St., North Tonawanda, N. Y. Nov.8

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ABSOLUTELY the best proposition offered young men of good habits is a course this school; our graduates have fine positions at salaries of $100 per month and more; chauffeurs mastering our course are fully competent to take charge of the high-priced cars; energy and ambition with our tuition spells success; special course for Owners. Call or write New York School of Automobile Engineers, 146 West Fifty-sixth St., New York. t.f.

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FOR SALE—Fully equipped Model K Winton; good as new. Box 152, Avon, N. Y. Nov.8

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FOR SALE—1904 Winton top, plate glass front; used but little; good as new; very cheap. Box 30, Dexter, Ia. Nov.8